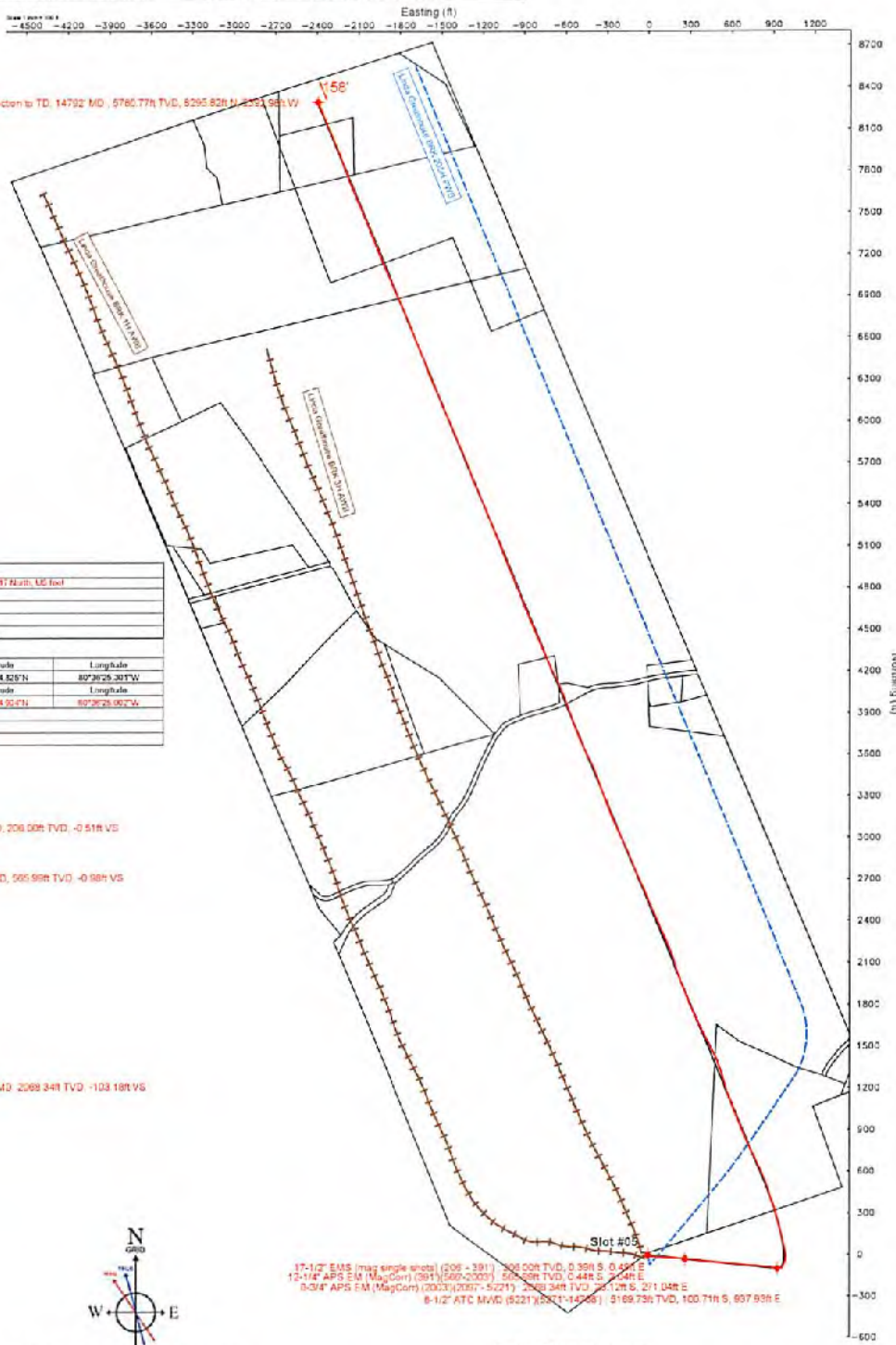


Location: Brooks County, WV Slot: Slot #05
 Field: Brooks Well: Linda Greathouse BRK 5H
 Facility: Linda Greathouse BRK Pad Wellbore: Linda Greathouse BRK 5H PWB

API #: 47-009-00155-0000
 BHI Job#: 7486875
 RIG: SDC 40
 Duration: 09.14.2015 - 09.23.2015



Plot reference wellpath is Linda Greathouse BRK 5H PWP Rev.A.0

True vertical depths are referenced to SDC 40 (RKB) Data System: MAG35; UTM Zone 17 North, US feet

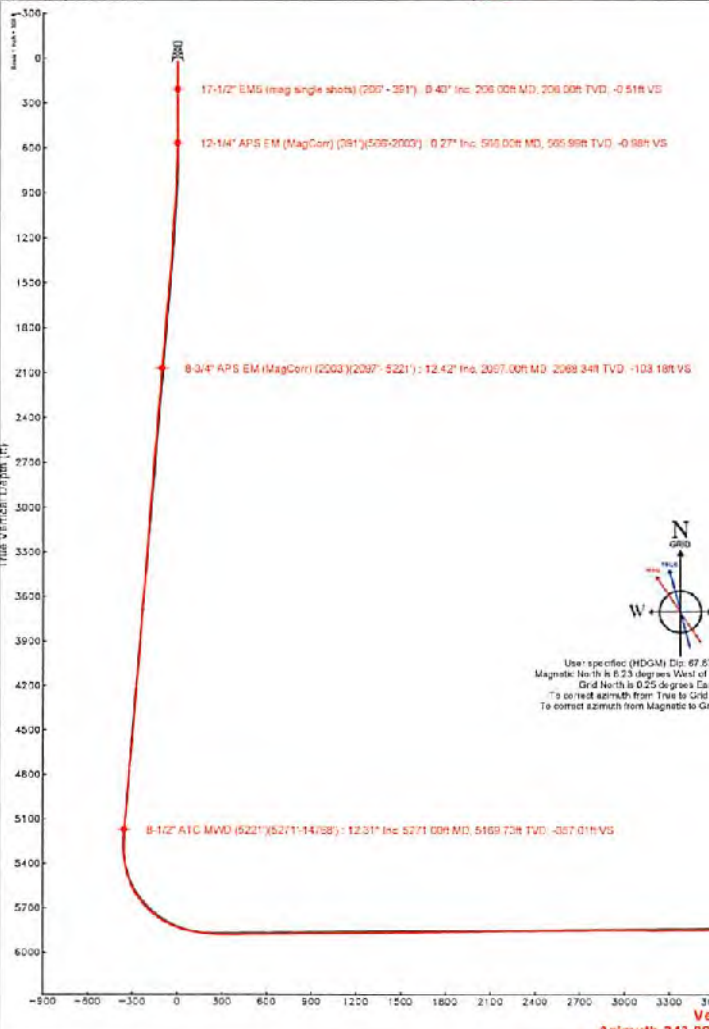
Measured depths are referenced to SDC 40 (RKB) North Reference: Grid north

SDC 40 (RKB) to Mean Sea Level: 1161.2 feet Scale: True Scale

Mean Sea Level to Mud line (At Slot Slot #05): -1139.2 feet Depth: 986.0 feet

Coordinates are in feet referenced to Slot Created by: ahaynes on 9/10/2015

Location Information					
Family Name	Grid East (US F)	Grid North (US F)	Latitude	Longitude	
Linda Greathouse BRK Pad	129150.810	1491305.320	40°12'14.525"N	80°29'25.201"W	
Slot	Local N (ft)	Local E (ft)	Grid North (US F)	Longitude	
Slot #05	8.48	22.43	149152.748	1491213.409	40°12'14.957"N
SDC 40 (RKB) to Mud line (At Slot Slot #05)					268
Mean Sea Level to Mud line (At Slot Slot #05)					-1139.2
SDC 40 (RKB) to Mean Sea Level					1161.2



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Vertical Section (ft)
 Azimuth 343.89° with reference 0.00 N, 0.00 E

09/15/2017



Actual Wellpath Report
 Linda Greathouse BRK 5H AWP Proj: 14792'
 Page 1 of 9



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #05
Area	Brooke County, WV	Well	Linda Greathouse BRK 5H
Field	Brooke	Wellbore	Linda Greathouse BRK 5H AWB
Facility	Linda Greathouse BRK Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 4.0.1
North Reference	Grid	User	Alvayes
Scale	0.999614	Report Generated	10/1/2015 at 3:35:27 PM
Convergence at slot	0.25° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Linda_Greathouse_BRK_5H_AWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	8.48	23.43	1750163.75	14601313.41	40°12'14.904"N	80°36'25.002"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 40 (RKB) to Facility Vertical Datum	1165.20ft
Horizontal Reference Pt	Slot	SDC 40 (RKB) to Mean Sea Level	1165.20ft
Vertical Reference Pt	SDC 40 (RKB)	SDC 40 (RKB) to Mud Line at Slot (Slot #05)	26.00ft
MD Reference Pt	SDC 40 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	343.89°

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Actual Wellpath Report

Linda Greathouse BRK 5H AWP Proj: 14792'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #05
Area	Brooke County, WV	Well	Linda Greathouse BRK 5H
Field	Brooke	Wellbore	Linda Greathouse BRK 5H AWB
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (174 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]	Comments
0.00†	0.000	128.690	0.00	0.00	0.00	0.00	1750163.75	14601313.41	40°12'14.904"N	80°36'25.002"W	0.00	0.000	0.00	0.00	0.00	
25.00	0.000	128.690	26.00	0.00	0.00	0.00	1750163.75	14601313.41	40°12'14.904"N	80°36'25.002"W	0.00	0.000	0.00	0.00	0.00	
206.00	0.400	128.690	206.00	-0.51	-0.39	0.49	1750164.24	14601313.02	40°12'14.900"N	80°36'24.996"W	0.63	128.690	0.22	0.22	0.00	17-1/2" EMS (mag single shots) (206' - 391')
298.00	0.200	307.890	298.00	-0.65	-0.49	0.61	1750164.36	14601312.92	40°12'14.899"N	80°36'24.994"W	0.79	128.853	0.65	-0.22	194.78	
391.00	0.500	97.890	391.00	-0.68	-0.45	0.89	1750164.64	14601312.96	40°12'14.900"N	80°36'24.991"W	1.00	116.915	0.73	0.32	161.29	
566.00	0.270	73.150	565.99	-0.98	-0.44	2.04	1750165.79	14601312.97	40°12'14.900"N	80°36'24.976"W	2.09	102.074	0.16	-0.13	-14.14	12-1/4" APS EM (MagCorr) (391')(566'-2003')
658.00	2.160	129.180	657.97	-2.41	-1.47	3.59	1750167.34	14601311.94	40°12'14.889"N	80°36'24.956"W	3.88	112.247	2.20	2.05	60.90	
705.00	2.300	118.730	704.93	-3.80	-2.48	5.10	1750168.85	14601310.93	40°12'14.879"N	80°36'24.936"W	5.68	115.929	0.91	0.30	-22.23	
797.00	4.310	114.250	796.78	-7.34	-4.79	9.88	1750173.62	14601308.62	40°12'14.856"N	80°36'24.875"W	10.98	115.871	2.20	2.18	-4.87	
890.00	6.140	107.210	889.39	-12.34	-7.70	17.81	1750181.56	14601305.72	40°12'14.827"N	80°36'24.773"W	19.40	113.367	2.08	1.97	-7.57	
983.00	8.210	103.400	981.65	-18.34	-10.71	29.03	1750192.76	14601302.71	40°12'14.797"N	80°36'24.628"W	30.94	110.248	2.28	2.23	-4.10	
1076.00	9.270	95.190	1073.58	-24.33	-12.92	42.95	1750206.68	14601300.49	40°12'14.774"N	80°36'24.449"W	44.85	106.748	1.76	1.14	-8.83	
1168.00	10.430	93.000	1164.22	-29.75	-14.03	58.64	1750222.37	14601299.39	40°12'14.763"N	80°36'24.247"W	60.30	103.455	1.32	1.26	-2.38	
1261.00	13.130	91.450	1255.25	-35.69	-14.74	77.61	1750241.33	14601298.68	40°12'14.755"N	80°36'24.003"W	79.00	100.752	2.92	2.90	-1.67	
1354.00	13.750	92.380	1345.71	-42.39	-15.46	99.21	1750262.93	14601297.95	40°12'14.747"N	80°36'23.724"W	100.41	98.859	0.71	0.67	1.00	
1447.00	14.220	91.320	1435.95	-49.31	-16.19	121.68	1750285.38	14601297.23	40°12'14.739"N	80°36'23.435"W	122.75	97.577	0.58	0.51	-1.14	
1539.00	14.060	95.100	1525.16	-56.74	-17.44	144.10	1750307.80	14601295.98	40°12'14.725"N	80°36'23.146"W	145.16	96.901	1.02	-0.17	4.11	
1632.00	14.250	95.710	1615.34	-65.08	-19.58	166.75	1750330.43	14601293.83	40°12'14.703"N	80°36'22.854"W	167.89	96.698	0.26	0.20	0.66	
1725.00	13.700	91.300	1705.59	-72.63	-20.97	189.15	1750352.82	14601292.45	40°12'14.688"N	80°36'22.565"W	190.31	96.327	1.29	-0.59	-4.74	
1817.00	12.990	92.860	1795.10	-79.25	-21.73	210.37	1750374.03	14601291.68	40°12'14.680"N	80°36'22.292"W	211.49	95.899	0.87	-0.77	1.70	
1910.00	12.690	99.070	1885.78	-87.00	-23.87	230.89	1750394.55	14601289.55	40°12'14.658"N	80°36'22.028"W	232.12	95.902	1.52	-0.32	6.68	
2003.00	12.480	98.750	1976.55	-95.57	-27.01	250.91	1750414.56	14601286.41	40°12'14.626"N	80°36'21.770"W	252.36	96.143	0.24	-0.23	-0.34	
2097.00	12.420	93.220	2068.34	-103.18	-29.12	271.04	1750434.69	14601284.30	40°12'14.604"N	80°36'21.510"W	272.60	96.132	1.27	-0.06	-5.88	8-3/4" APS EM (MagCorr) (2003')(2097'- 5221')
2190.00	12.200	94.920	2159.20	-110.02	-30.52	290.82	1750454.46	14601282.90	40°12'14.590"N	80°36'21.256"W	292.42	95.992	0.46	-0.24	1.83	
2283.00	13.200	95.100	2249.93	-117.39	-32.31	311.19	1750474.82	14601281.11	40°12'14.571"N	80°36'20.993"W	312.86	95.928	1.08	1.08	0.19	
2376.00	13.280	92.710	2340.46	-124.68	-33.76	332.43	1750496.05	14601279.66	40°12'14.556"N	80°36'20.720"W	334.14	95.799	0.59	0.09	-2.57	
2469.00	13.020	96.330	2431.02	-132.12	-35.42	353.51	1750517.13	14601278.00	40°12'14.539"N	80°36'20.448"W	355.28	95.721	0.93	-0.28	3.89	
2561.00	13.350	98.170	2520.59	-140.45	-38.07	374.33	1750537.93	14601275.35	40°12'14.511"N	80°36'20.180"W	376.26	95.807	0.58	0.36	2.00	
2654.00	10.900	100.030	2611.51	-148.74	-41.13	393.62	1750557.22	14601272.30	40°12'14.480"N	80°36'19.931"W	395.76	95.965	2.67	-2.63	2.00	
2747.00	9.640	100.670	2703.02	-156.12	-44.10	409.93	1750573.52	14601269.33	40°12'14.450"N	80°36'19.721"W	412.30	96.140	1.36	-1.35	0.69	

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Linda Greathouse BRK 5H AWP Proj: 14792'

Actual Wellpath Report

Linda Greathouse BRK 5H AWP Proj: 14792



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #05
Area	Brooke County, WV	Well	Linda Greathouse BRK 5H
Field	Brooke	Wellbore	Linda Greathouse BRK 5H AWP
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (174 stations)															
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	DLS	Build Rate	Turn Rate	Comments
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]	[ft]	[ft]	[ft]	[%/100ft]	[%/100ft]	[%/100ft]	
2840.00	10.140	95.450	2794.64	-162.64	-46.32	425.73	1750589.32	14601267.11	40°12'14.428"N	80°36'19.518"W	428.24	96.210	1.10	0.54	-5.61
2932.00	11.340	99.050	2885.03	-169.46	-48.51	442.73	1750606.30	14601264.92	40°12'14.405"N	80°36'19.299"W	445.38	96.253	1.49	1.30	3.91
3025.00	10.860	98.080	2976.29	-176.93	-51.18	460.43	1750624.00	14601262.25	40°12'14.378"N	80°36'19.071"W	463.27	96.343	0.84	-0.52	-1.04
3118.00	10.630	94.090	3067.66	-183.49	-53.03	477.66	1750641.23	14601260.40	40°12'14.359"N	80°36'18.849"W	480.59	96.335	0.85	-0.25	-4.29
3210.00	11.930	94.670	3157.88	-189.79	-54.41	495.60	1750659.16	14601259.03	40°12'14.345"N	80°36'18.618"W	498.58	96.265	1.42	1.41	0.63
3303.00	13.110	95.860	3248.67	-197.15	-56.27	515.68	1750679.23	14601257.17	40°12'14.325"N	80°36'18.359"W	518.74	96.227	1.30	1.27	1.28
3396.00	12.450	90.570	3339.37	-203.97	-57.44	536.19	1750699.73	14601255.99	40°12'14.313"N	80°36'18.095"W	539.26	96.115	1.44	-0.71	-5.69
3489.00	11.780	91.970	3430.29	-209.79	-57.87	555.71	1750719.24	14601253.56	40°12'14.308"N	80°36'17.843"W	558.71	95.945	0.79	-0.72	1.51
3581.00	11.570	101.930	3520.43	-216.97	-60.07	573.97	1750737.49	14601253.37	40°12'14.285"N	80°36'17.608"W	577.10	95.974	2.21	-0.45	10.83
3674.00	11.570	100.580	3611.57	-225.47	-63.67	592.10	1750755.62	14601249.76	40°12'14.249"N	80°36'17.375"W	595.52	96.138	0.36	-0.22	-1.45
3767.00	11.010	89.780	3702.78	-232.09	-65.35	610.15	1750773.67	14601248.08	40°12'14.231"N	80°36'17.142"W	613.64	96.113	2.35	-0.60	-11.61
3860.00	11.020	89.260	3794.07	-236.88	-65.20	627.92	1750791.43	14601248.23	40°12'14.232"N	80°36'16.913"W	631.30	95.928	0.11	0.01	-0.56
3952.00	11.700	98.900	3884.28	-243.15	-66.53	645.93	1750809.43	14601246.90	40°12'14.218"N	80°36'16.681"W	649.35	95.881	2.19	0.74	10.48
4045.00	13.200	99.540	3975.24	-251.44	-69.64	665.05	1750828.54	14601243.80	40°12'14.187"N	80°36'16.435"W	668.68	95.978	0.70	0.69	0.69
4138.00	13.810	91.880	4065.94	-259.02	-71.63	685.46	1750848.95	14601241.80	40°12'14.166"N	80°36'16.172"W	689.20	95.966	2.04	0.92	-8.24
4231.00	13.810	95.480	4156.37	-266.39	-73.04	707.12	1750870.60	14601240.40	40°12'14.151"N	80°36'15.893"W	710.89	95.897	1.12	0.66	3.87
4324.00	13.940	97.370	4246.66	-274.94	-75.54	729.28	1750892.75	14601237.90	40°12'14.126"N	80°36'15.607"W	733.18	95.914	0.51	0.14	2.03
4416.00	12.550	88.000	4336.22	-281.79	-76.61	750.27	1750913.72	14601236.83	40°12'14.114"N	80°36'15.337"W	754.17	95.830	2.78	-1.51	-10.18
4509.00	12.250	90.110	4427.05	-287.01	-76.28	770.23	1750933.68	14601237.16	40°12'14.116"N	80°36'15.080"W	774.00	95.656	0.58	-0.32	2.27
4602.00	13.730	100.350	4517.68	-294.68	-78.28	790.96	1750954.40	14601235.16	40°12'14.096"N	80°36'14.813"W	794.82	95.652	2.94	1.59	11.01
4695.00	13.850	99.670	4607.59	-305.13	-82.40	814.34	1750977.77	14601231.04	40°12'14.054"N	80°36'14.512"W	818.49	95.778	2.29	2.28	-1.40
4787.00	13.570	98.380	4696.57	-315.06	-86.08	837.40	1751000.83	14601227.36	40°12'14.017"N	80°36'14.214"W	841.82	95.869	2.50	-2.48	-1.40
4880.00	11.920	93.870	4787.28	-322.87	-88.32	857.78	1751021.20	14601225.12	40°12'13.994"N	80°36'13.952"W	862.32	95.879	2.07	-1.77	-4.85
4973.00	11.620	92.860	4878.33	-329.20	-89.43	876.72	1751040.13	14601224.01	40°12'13.982"N	80°36'13.708"W	881.27	95.825	0.39	-0.32	-1.09
5066.00	11.790	102.160	4969.40	-336.74	-91.90	895.36	1751058.76	14601221.54	40°12'13.956"N	80°36'13.468"W	900.07	95.861	2.03	0.18	10.00
5158.00	12.330	103.980	5059.37	-346.12	-96.26	914.08	1751077.48	14601217.19	40°12'13.913"N	80°36'13.227"W	919.14	96.011	0.72	0.59	1.98
5221.00	12.500	100.540	5120.90	-352.55	-99.13	927.31	1751090.70	14601214.32	40°12'13.884"N	80°36'13.056"W	932.60	96.102	1.20	0.27	-5.46
5271.00	12.310	96.340	5169.73	-357.01	-100.71	937.93	1751101.32	14601212.74	40°12'13.868"N	80°36'12.920"W	943.32	96.128	1.84	-0.38	-8.40
5317.00	11.680	90.360	5214.73	-360.20	-101.28	947.46	1751110.84	14601212.17	40°12'13.862"N	80°36'12.797"W	952.86	96.101	3.03	-1.37	-13.00
5363.00	11.140	73.750	5259.83	-361.51	-100.06	956.39	1751119.76	14601213.39	40°12'13.873"N	80°36'12.682"W	961.61	95.973	7.21	-1.17	-36.11

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MAY 12 2017

Actual Wellpath Report

Linda Greathouse BRK 5H AWP Proj: 14792

Operator	Area	Field	Facility
SOUTHWESTERN ENERGY	Brooke County, WV	Brooke	Linda Greathouse BRK Pad
Slot #05	Well	Linda Greathouse BRK SH	Wellbore
		Linda Greathouse BRK SH AWP	

WELLPATH DATA (174 stations)

MID	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dtr	DLS	Build Rate	Turn Rate	Comments
5410.00	11.340	5305.94	-360.27	-96.37	964.68	1751128.06	1460121.708	40°12'13.909"N	80°36'12.575"W	969.48	95.705	6.35	0.43	-32.62		
5456.00	12.470	5350.95	-356.87	-90.66	972.21	1751135.58	1460122.78	40°12'13.965"N	80°36'12.477"W	976.43	95.328	5.38	2.46	-23.24		
5503.00	14.790	5396.63	-351.21	-82.59	979.75	1751143.11	14601230.86	40°12'14.045"N	80°36'12.380"W	983.22	94.818	6.58	4.94	-18.53		
5549.00	18.440	5440.71	-342.67	-71.63	986.93	1751150.29	14601241.81	40°12'14.153"N	80°36'12.287"W	989.52	94.151	7.93	7.93	-22.72		
5595.00	22.080	5483.88	-330.33	-57.01	993.08	1751156.45	14601256.42	40°12'14.297"N	80°36'12.206"W	994.72	93.286	11.18	7.91	-22.93		
5642.00	25.440	5526.90	-313.91	-38.64	997.49	1751160.85	14601274.78	40°12'14.478"N	80°36'12.149"W	998.23	92.218	10.20	7.15	-18.11		
5688.00	29.240	1.550	-294.28	-17.65	999.42	1751162.79	14601295.76	40°12'14.686"N	80°36'12.122"W	999.58	91.012	11.45	8.26	-17.30		
5734.00	32.250	354.530	-271.50	5.81	998.56	1751161.92	14601319.22	40°12'14.918"N	80°36'12.132"W	998.57	89.667	10.17	6.54	-15.26		
5781.00	36.390	349.030	-245.27	32.00	994.71	1751158.07	14601345.39	40°12'15.176"N	80°36'12.180"W	995.22	88.158	11.00	8.81	-11.70		
5827.00	42.140	346.860	-216.25	60.45	988.60	1751151.96	14601373.83	40°12'15.458"N	80°36'12.257"W	990.44	86.501	12.85	12.50	-4.72		
5874.00	46.770	346.800	-183.38	92.49	981.10	1751144.47	14601405.86	40°12'15.775"N	80°36'12.352"W	985.45	84.615	9.85	9.85	-0.13		
5920.00	51.260	346.340	-148.70	126.25	973.03	1751136.40	14601439.61	40°12'16.109"N	80°36'12.454"W	981.19	82.607	9.79	9.76	-1.00		
5966.00	56.090	344.850	-111.67	162.13	963.80	1751127.17	14601475.48	40°12'16.464"N	80°36'12.571"W	977.34	80.451	10.82	10.50	-3.24		
6013.00	61.640	343.550	-71.46	200.82	952.84	1751116.22	14601514.15	40°12'16.847"N	80°36'12.710"W	973.77	78.098	12.04	11.81	-2.77		
6059.00	66.080	343.530	-30.18	240.41	941.14	1751104.52	14601553.73	40°12'17.238"N	80°36'12.859"W	971.36	75.670	9.65	9.65	-0.04		
6106.00	71.330	342.750	5834.29	13.60	928.44	1751091.83	14601595.61	40°12'17.653"N	80°36'13.020"W	970.41	73.087	11.28	11.17	-1.66		
6152.00	75.390	342.370	5847.46	5.765	915.23	1751078.62	14601637.63	40°12'18.069"N	80°36'13.188"W	971.00	70.486	8.86	8.83	-0.83		
6198.00	78.470	342.810	5857.86	102.44	901.83	1751065.23	14601680.36	40°12'18.492"N	80°36'13.358"W	973.68	67.851	6.76	6.70	0.96		
6245.00	81.970	342.800	5865.84	411.34	888.14	1751051.54	14601724.59	40°12'18.930"N	80°36'13.532"W	978.76	65.149	7.45	7.45	-0.02		
6291.00	83.930	342.000	5871.49	194.38	874.33	1751037.74	14601768.08	40°12'19.360"N	80°36'13.707"W	985.57	62.515	4.60	4.26	-1.74		
6338.00	85.500	340.800	5875.82	241.13	859.42	1751022.84	14601812.42	40°12'19.799"N	80°36'13.897"W	993.89	59.849	4.15	3.34	-2.47		
6384.00	88.250	337.670	5878.33	286.90	843.15	1751006.57	14601855.35	40°12'20.224"N	80°36'14.104"W	1002.41	57.259	9.11	5.98	-6.89		
6430.00	90.650	335.770	5878.77	332.53	824.97	1750988.40	14601897.58	40°12'20.643"N	80°36'14.336"W	1010.99	54.687	6.65	5.22	-4.13		
6523.00	90.710	334.480	5877.66	424.44	806.86	1750949.30	14601981.91	40°12'21.478"N	80°36'14.835"W	1031.90	49.602	1.39	0.06	-1.39		
6616.00	90.650	334.450	5876.56	516.18	752.67	1750909.23	14602065.79	40°12'22.309"N	80°36'15.347"W	1059.57	44.736	0.07	-0.06	-0.03		
6709.00	90.830	336.070	5875.36	608.11	837.13	1750870.33	14602150.21	40°12'23.145"N	80°36'15.844"W	1095.64	40.177	1.75	0.19	1.74		
6802.00	90.890	338.680	5873.96	700.49	922.95	1750834.58	14602236.00	40°12'23.995"N	80°36'16.300"W	1141.14	36.021	2.81	0.06	2.81		
6894.00	90.490	337.520	5872.86	792.02	1008.31	1750800.28	14602321.32	40°12'24.840"N	80°36'16.737"W	1192.54	32.274	1.33	-0.43	-1.26		
6987.00	90.220	337.420	5872.28	884.43	1094.21	1750764.66	14602407.19	40°12'25.690"N	80°36'17.192"W	1248.46	28.784	0.31	-0.29	-0.11		
7080.00	90.830	343.540	5871.43	977.22	1181.82	1750733.61	14602494.77	40°12'26.558"N	80°36'17.587"W	1312.13	25.752	6.61	0.66	6.58		

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Actual Wellpath Report

Linda Greathouse BRK SH AWP Proj: 14792

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #05
Area	Brooke County, WV	Well	Linda Greathouse BRK SH
Field	Brooke	Wellbore	Linda Greathouse BRK SH AWB
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (174 stations)

MID	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Uplift	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
7173.00	90.800	344.130	5870.10	1070.21	1271.13	544.19	1750707.73	14602584.05	40°12'27.44"N	80°36'17.915"W	1382.72	23.177	0.64	-0.03	0.63		
7173.00	90.800	344.130	5870.10	1070.21	1271.13	544.19	1750707.73	14602584.05	40°12'27.44"N	80°36'17.915"W	1382.72	23.177	0.64	-0.03	0.63		
7265.00	90.830	340.430	5868.79	1162.15	1358.74	516.20	1750679.75	14602671.62	40°12'28.308"N	80°36'18.271"W	1453.49	20.802	4.02	0.03	-4.02		
7358.00	90.680	334.790	5867.57	1254.54	1444.69	480.79	1750644.36	14602757.54	40°12'29.159"N	80°36'18.723"W	1522.59	18.407	6.07	-0.16	-6.06		
7451.00	90.740	330.520	5866.41	1345.73	1527.27	438.09	1750601.67	14602840.09	40°12'29.977"N	80°36'19.268"W	1588.86	16.005	4.59	0.06	-4.59		
7544.00	90.680	334.270	5865.26	1436.84	1609.66	395.00	1750558.60	14602922.45	40°12'30.793"N	80°36'19.819"W	1657.42	13.788	4.03	-0.06	4.03		
7636.00	90.740	334.330	5864.12	1527.55	1692.55	355.11	1750518.72	14603005.31	40°12'31.614"N	80°36'20.328"W	1729.41	11.849	0.09	0.07	0.07		
7729.00	90.830	335.930	5862.85	1619.46	1776.92	316.00	1750479.65	14603089.64	40°12'32.449"N	80°36'20.828"W	1804.80	10.084	1.72	0.10	1.72		
7822.00	90.710	339.010	5861.60	1711.85	1862.80	280.38	1750444.02	14603175.49	40°12'33.300"N	80°36'21.282"W	1883.78	8.560	3.31	-0.13	3.31		
7915.00	90.650	337.290	5860.49	1804.38	1949.11	245.77	1750409.42	14603261.77	40°12'34.154"N	80°36'21.723"W	1964.55	7.187	1.85	-0.06	-1.85		
8007.00	90.860	341.780	5859.28	1896.08	2035.28	213.61	1750373.28	14603347.90	40°12'35.007"N	80°36'22.153"W	2046.46	5.992	4.89	0.23	4.88		
8100.00	90.800	344.340	5857.93	1989.05	2124.22	186.52	1750350.20	14603436.81	40°12'35.887"N	80°36'22.477"W	2132.40	5.018	2.75	-0.06	2.75		
8193.00	90.800	337.790	5856.63	2081.75	2211.56	154.84	1750318.53	14603524.11	40°12'36.752"N	80°36'22.880"W	2216.98	4.005	9.19	0.00	-9.19		
8285.00	90.860	336.470	5855.30	2172.90	2295.68	117.62	1750281.32	14603608.20	40°12'37.585"N	80°36'23.355"W	2298.69	2.933	0.74	0.07	0.74		
8378.00	90.280	336.140	5854.37	2265.08	2380.84	80.25	1750243.97	14603693.32	40°12'38.428"N	80°36'23.832"W	2382.19	1.930	0.72	-0.62	-0.35		
8471.00	90.770	335.470	5853.21	2357.15	2465.67	42.13	1750205.87	14603778.12	40°12'39.268"N	80°36'24.318"W	2466.03	0.979	0.89	-0.53	-0.72		
8563.00	90.740	336.070	5852.32	2448.22	2549.55	4.38	1750168.13	14603861.97	40°12'40.098"N	80°36'24.800"W	2549.56	0.098	0.65	-0.03	0.65		
8656.00	90.710	336.110	5851.13	2540.35	2634.57	-33.31	1750130.45	14603946.95	40°12'40.940"N	80°36'25.281"W	2634.78	359.276	0.05	-0.03	0.04		
8749.00	90.800	336.540	5849.91	2632.53	2719.73	-70.65	1750093.13	14604032.08	40°12'41.783"N	80°36'25.757"W	2720.65	358.512	0.47	0.10	0.46		
8841.00	90.520	337.620	5848.85	2723.88	2804.46	-106.48	1750057.31	14604116.78	40°12'42.622"N	80°36'26.214"W	2806.48	357.826	1.21	-0.30	1.17		
8934.00	90.340	337.480	5848.15	2816.30	2890.41	-141.99	1750021.81	14604202.70	40°12'43.473"N	80°36'26.667"W	2893.89	357.188	0.25	-0.19	-0.15		
9027.00	89.970	335.210	5847.90	2908.49	2975.59	-179.30	1749984.52	14604287.84	40°12'44.316"N	80°36'27.143"W	2980.99	356.552	2.47	-0.40	-2.44		
9120.00	89.820	334.810	5848.07	3000.38	3059.88	-218.59	1749945.24	14604372.10	40°12'45.151"N	80°36'27.645"W	3067.68	355.914	0.46	-0.16	-0.43		
9212.00	89.820	336.780	5848.36	3091.46	3143.79	-256.31	1749907.54	14604455.98	40°12'45.982"N	80°36'28.126"W	3154.22	355.339	2.14	0.00	2.14		
9305.00	89.880	339.220	5848.60	3183.96	3230.01	-291.14	1749872.72	14604542.17	40°12'46.835"N	80°36'28.570"W	3243.11	354.849	2.62	0.06	2.62		
9398.00	90.250	339.950	5848.50	3276.69	3317.17	-323.58	1749840.29	14604629.29	40°12'47.698"N	80°36'28.983"W	3332.91	354.429	0.88	0.40	0.78		
9490.00	90.340	340.850	5848.02	3368.52	3403.84	-354.44	1749809.44	14604715.92	40°12'48.556"N	80°36'29.376"W	3422.24	354.055	0.98	0.10	0.98		
9583.00	90.490	337.850	5847.35	3461.22	3490.85	-387.24	1749776.66	14604802.90	40°12'49.417"N	80°36'29.794"W	3512.26	353.670	3.23	0.16	-3.23		
9676.00	90.400	332.840	5846.63	3553.15	3575.34	-426.02	1749737.90	14604887.36	40°12'50.254"N	80°36'30.289"W	3600.63	353.205	5.39	-0.10	-5.39		
9769.00	90.430	334.590	5845.95	3644.68	3658.72	-467.20	1749696.73	14604970.71	40°12'51.079"N	80°36'30.815"W	3688.43	352.723	1.88	0.03	1.88		
9861.00	90.680	338.800	5845.06	3735.93	3745.19	-503.59	1749660.36	14605055.15	40°12'51.916"N	80°36'31.279"W	3776.91	352.338	4.58	0.27	4.58		

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Actual Wellpath Report

Linda Greathouse BRK 5H AWP Proj: 14792

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Operator	SOUTHWESTERN ENERGY
Area	Brooke County, WV
Field	Brooke
Facility	Linda Greathouse BRK Pad
Slot	Slot #05
Well	Linda Greathouse BRK 5H
Wellbore	Linda Greathouse BRK 5H AWB

REFERENCE WELLPATH IDENTIFICATION

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dtr	DLS	Build Rate	Turn Rate	Comments
9954.00	90.650	339.700	5843.98	3828.62	3830.15	-536.53	1749627.42	14605142.07	40°12'52.776"N	80°36'31.699"W	3867.55	352.026	0.97	-0.03	0.97	
10047.00	90.650	340.750	5842.93	3921.43	3917.66	-568.00	1749595.97	14605229.55	40°12'53.643"N	80°36'32.100"W	3958.62	351.751	1.13	0.00	1.13	
10140.00	90.620	338.540	5841.90	4014.16	4004.84	-600.34	1749563.64	14605316.70	40°12'54.506"N	80°36'32.512"W	4049.59	351.475	2.38	-0.03	-2.38	
10233.00	90.650	336.830	5840.86	4106.60	4090.87	-635.65	1749528.35	14605402.69	40°12'55.357"N	80°36'32.962"W	4139.96	351.168	1.84	0.03	-1.84	
10325.00	90.770	333.010	5839.72	4197.46	4174.17	-674.64	1749489.38	14605485.96	40°12'56.182"N	80°36'33.460"W	4228.34	350.819	4.15	0.13	-4.15	
10418.00	90.680	336.050	5838.55	4289.20	4258.12	-714.62	1749449.41	14605569.87	40°12'57.013"N	80°36'33.970"W	4317.67	350.473	3.27	-0.10	3.27	
10511.00	90.680	336.540	5837.44	4381.38	4343.26	-752.01	1749412.03	14605654.99	40°12'57.856"N	80°36'34.448"W	4407.89	350.177	0.53	0.00	0.53	
10604.00	90.740	337.000	5836.29	4473.65	4428.72	-788.69	1749375.37	14605740.41	40°12'58.702"N	80°36'34.916"W	4498.40	349.902	0.50	0.06	0.49	
10697.00	90.650	336.830	5835.16	4565.96	4514.26	-825.15	1749338.92	14605825.92	40°12'59.549"N	80°36'35.381"W	4589.06	349.641	0.21	-0.10	-0.18	
10789.00	90.710	336.610	5834.07	4657.23	4598.77	-861.51	1749302.38	14605910.39	40°13'00.386"N	80°36'35.845"W	4678.77	349.390	0.25	0.07	-0.24	
10882.00	90.370	338.150	5833.19	4749.62	4684.61	-897.27	1749266.82	14605996.20	40°13'01.236"N	80°36'36.301"W	4769.76	349.157	1.70	-0.37	1.66	
10975.00	90.400	336.420	5832.57	4842.00	4770.39	-933.18	1749230.93	14606081.95	40°13'02.085"N	80°36'36.759"W	4860.81	348.932	1.86	0.03	-1.86	
11068.00	90.740	337.980	5831.64	4934.36	4856.12	-969.22	1749194.91	14606167.64	40°13'02.934"N	80°36'37.218"W	4951.89	348.713	1.72	0.37	1.68	
11161.00	90.340	336.890	5830.77	5026.77	4941.99	-1004.90	1749159.24	14606253.48	40°13'03.784"N	80°36'37.674"W	5043.12	348.506	1.25	-0.43	-1.17	
11253.00	90.430	338.810	5830.25	5027.20	5027.20	-1039.59	1749124.56	14606338.65	40°13'04.627"N	80°36'38.116"W	5133.56	348.316	2.09	0.10	2.09	
11346.00	90.650	338.690	5829.17	5210.87	5113.87	-1073.29	1749090.87	14606425.29	40°13'05.485"N	80°36'38.545"W	5225.29	348.147	0.27	0.24	-0.13	
11439.00	90.710	338.090	5828.17	5303.44	5200.33	-1107.54	1749056.64	14606511.72	40°13'06.341"N	80°36'38.982"W	5316.96	347.977	0.65	0.06	-0.65	
11532.00	90.650	337.790	5827.07	5395.93	5286.51	-1142.47	1749021.73	14606597.87	40°13'07.194"N	80°36'39.427"W	5408.55	347.805	0.33	-0.06	-0.32	
11625.00	90.710	337.360	5825.96	5488.36	5372.47	-1177.94	1748986.26	14606683.80	40°13'08.045"N	80°36'39.880"W	5500.09	347.633	0.47	0.06	-0.46	
11717.00	90.580	335.640	5824.93	5579.58	5456.83	-1214.62	1748949.60	14606768.12	40°13'08.881"N	80°36'40.348"W	5590.38	347.451	1.87	-0.14	-1.87	
11810.00	90.680	337.360	5823.90	5671.80	5542.11	-1251.70	1748912.53	14606853.37	40°13'09.725"N	80°36'40.821"W	5681.70	347.273	1.85	0.11	1.85	
11903.00	90.680	340.730	5822.80	5764.45	5628.94	-1284.96	1748879.29	14606940.17	40°13'10.584"N	80°36'41.245"W	5773.74	347.141	3.62	0.00	3.62	
11996.00	90.400	337.960	5821.92	5857.14	5715.95	-1317.76	1748846.50	14607027.14	40°13'11.446"N	80°36'41.663"W	5865.88	347.018	2.99	-0.30	-2.98	
12088.00	90.430	335.060	5821.26	5948.37	5800.32	-1354.42	1748809.85	14607111.47	40°13'12.281"N	80°36'42.131"W	5956.35	346.856	3.15	0.03	-3.15	
12181.00	90.520	339.080	5820.49	6040.69	5885.95	-1390.65	1748773.64	14607197.07	40°13'13.129"N	80°36'42.593"W	6048.00	346.707	4.32	0.10	4.32	
12274.00	90.770	336.590	5819.44	6133.16	5972.06	-1425.73	1748738.57	14607283.15	40°13'13.981"N	80°36'43.040"W	6139.89	346.573	2.69	0.27	-2.68	
12367.00	90.310	334.410	5818.56	6225.15	6056.68	-1464.29	1748700.03	14607367.74	40°13'14.819"N	80°36'43.533"W	6231.17	346.409	2.40	-0.49	-2.34	
12460.00	90.340	338.430	5818.03	6317.34	6141.89	-1501.49	1748662.85	14607452.92	40°13'15.663"N	80°36'44.007"W	6322.76	346.263	4.32	0.03	4.32	
12552.00	90.250	336.330	5817.56	6408.74	6226.81	-1536.87	1748627.48	14607537.80	40°13'16.503"N	80°36'44.459"W	6413.67	346.136	2.28	-0.10	-2.28	
12645.00	90.340	336.030	5817.08	6500.90	6311.89	-1574.43	1748589.93	14607622.85	40°13'17.346"N	80°36'44.938"W	6505.29	345.994	0.34	0.10	-0.32	

WELLPATH DATA (174 stations)

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Actual Wellpath Report

Linda Greathouse BRK 5H AWP Proj: 14792



Operator	Area	Field	Facility
SOUTHWESTERN ENERGY	Brooke County, WV	Brooke	Linda Greathouse BRK Pad
Slot	Well	Wellbore	
Slot #05	Linda Greathouse BRK 5H	Linda Greathouse BRK 5H AWP	

REFERENCE WELLPATH IDENTIFICATION

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grd East	Grd North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]	
12738.00	90.370	340.050	5816.50	6398.12	-1609.20	1748555.18	14607709.05	40°13'18.199"N	80°36'45.381"W	6597.38	345.882	4.32	0.03	4.32	-1.65	Projection to TD: 14792 MD
12831.00	90.520	338.520	5815.78	6686.09	6485.10	1748222.30	14607796.00	40°13'19.060"N	80°36'45.800"W	6689.77	345.791	1.65	0.16	-1.65		
12924.00	90.830	336.230	5814.69	6778.48	6570.94	1748486.54	14607881.79	40°13'19.910"N	80°36'46.257"W	6781.77	345.676	2.48	0.33	-2.46		
13016.00	91.450	339.910	5812.86	6869.97	6656.25	1748452.20	14607967.07	40°13'20.754"N	80°36'46.695"W	6872.94	345.574	4.06	0.67	4.00		
13109.00	90.800	336.490	5811.05	6962.48	6742.57	1748417.69	14608053.36	40°13'21.609"N	80°36'47.135"W	6965.15	345.476	3.74	-0.70	-3.68		
13202.00	90.680	335.730	5809.83	7054.61	6827.59	1748380.05	14608138.35	40°13'22.451"N	80°36'47.616"W	7056.91	345.353	0.83	-0.13	-0.82		
13295.00	90.890	335.830	5808.55	7146.67	6912.40	1748341.91	14608223.12	40°13'23.290"N	80°36'48.103"W	7148.65	345.229	0.25	0.23	0.11		
13387.00	90.830	335.510	5807.17	7237.72	6996.22	1748304.03	14608306.91	40°13'24.120"N	80°36'48.587"W	7239.36	345.108	0.35	-0.07	-0.35		
13480.00	90.830	336.440	5805.83	7329.82	7081.15	1748266.18	14608391.81	40°13'24.961"N	80°36'49.070"W	7331.18	344.993	1.00	0.00	1.00		
13573.00	90.710	337.820	5804.58	7422.17	7166.83	1748230.06	14608477.46	40°13'25.810"N	80°36'49.531"W	7423.31	344.895	1.49	-0.13	1.48		
13666.00	90.710	338.520	5803.42	7514.69	7253.15	1748195.49	14608563.75	40°13'26.664"N	80°36'49.972"W	7515.67	344.812	0.75	0.00	0.75		
13759.00	90.920	338.400	5802.10	7607.27	7339.65	1748161.36	14608650.21	40°13'27.520"N	80°36'50.407"W	7608.09	344.734	0.26	0.23	-0.13		
13851.00	91.350	338.330	5800.28	7698.82	7425.15	1748127.46	14608735.68	40°13'28.367"N	80°36'50.840"W	7699.51	344.658	0.47	0.47	-0.08		
13944.00	91.320	336.150	5798.11	7791.17	7510.88	1748091.51	14608821.37	40°13'29.215"N	80°36'51.299"W	7791.72	344.570	2.34	-0.03	-2.34		
14037.00	91.230	336.610	5796.04	7883.35	7596.07	1748054.27	14608906.53	40°13'30.059"N	80°36'51.774"W	7883.75	344.474	0.50	-0.10	0.49		
14130.00	91.230	337.710	5794.05	7975.68	7681.75	1748018.20	14608992.18	40°13'30.907"N	80°36'52.234"W	7975.98	344.389	1.18	0.00	1.18		
14222.00	91.170	339.030	5792.12	8067.23	7767.26	1747984.31	14609077.65	40°13'31.753"N	80°36'52.667"W	8067.46	344.320	1.44	-0.07	1.43		
14315.00	91.080	340.930	5790.29	8159.99	7854.61	1747952.49	14609164.98	40°13'32.618"N	80°36'53.072"W	8160.17	344.271	2.04	-0.10	2.04		
14408.00	91.170	337.780	5788.47	8252.67	7941.61	1747919.72	14609251.94	40°13'33.479"N	80°36'53.490"W	8252.81	344.216	3.39	0.10	-3.39		
14501.00	91.140	336.940	5786.59	8345.05	8027.43	1747883.94	14609337.72	40°13'34.329"N	80°36'53.947"W	8345.13	344.139	0.90	-0.03	-0.90		
14594.00	91.170	336.880	5784.72	8437.34	8112.96	1747847.49	14609423.22	40°13'35.176"N	80°36'54.412"W	8437.38	344.060	0.07	0.03	-0.06		
14686.00	91.110	338.280	5782.89	8528.76	8197.99	1747812.43	14609508.22	40°13'36.017"N	80°36'54.859"W	8528.78	343.990	1.52	-0.07	1.52		
14768.00	91.170	336.830	5781.26	8610.25	8273.76	1747781.14	14609583.96	40°13'36.767"N	80°36'55.259"W	8610.25	343.929	1.77	0.07	-1.77		
14792.00	91.170	336.830	5780.77	8634.06	8295.82	1747771.70	14609606.01	40°13'36.986"N	80°36'55.379"W	8634.06	343.909	0.00	0.00	0.00		

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Actual Wellpath Report
 Linda Greathouse BRK 5H AWP Proj: 14792'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #05
Area	Brooke County, WV	Well	Linda Greathouse BRK 5H
Field	Brooke	Wellbore	Linda Greathouse BRK 5H AWB
Facility	Linda Greathouse BRK Pad		

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Linda Greathouse BRK 5H BHL Rev-3		5788.98	8295.24	-2396.16	1747768.52	14609605.43	40°13'36.980"N	80°36'55.420"W	point
Linda Greathouse BRK 5H LP Rev-4		5869.00	488.69	855.64	1751019.06	14601801.91	40°12'19.696"N	80°36'13.946"W	point

WELLPATH COMPOSITION - Ref Wellbore: Linda Greathouse BRK 5H AWB Ref Wellpath: Linda Greathouse BRK 5H AWP Proj: 14792'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	391.00	EMS (Standard)	01_17-1/2" EMS (mag single shots) (206' - 391')	Linda Greathouse BRK 5H AWB
391.00	2003.00	NaviTrak (MagCorr)	02_12-1/4" APS EM (MagCorr) (391')(566'-2003')	Linda Greathouse BRK 5H AWB
2003.00	5221.00	NaviTrak (MagCorr)	03_8-3/4" APS EM (MagCorr) (2003')(2097'- 5221')	Linda Greathouse BRK 5H AWB
5221.00	14768.00	NaviTrak (MagCorr)	04_8-1/2" ATC MWD (5221')(5271'-14768')	Linda Greathouse BRK 5H AWB
14768.00	14792.00	Blind Drilling (std)	Projection to bit	Linda Greathouse BRK 5H AWB

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #05
Area	Brooke County, WV	Well	Linda Greathouse BRK 5H
Field	Brooke	Wellbore	Linda Greathouse BRK 5H AWB
Facility	Linda Greathouse BRK Pad		

COMMENTS
<p>Wellpath general comments</p> <p>API #: 47-009-00155-0000 SO #: 7486875 RIG: SDC 40 Duration: 09.14.2015 - 09.23.2015 17-1/2" EMS (mag single shots) (206' - 391') 12-1/4" APS EM (MagCorr) (391')(566'-2003') 8-3/4" APS EM (MagCorr) (2003')(2097'- 5221') 8-1/2" ATC MWD (5221')(5271'-14768')</p>

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