

09/15/2017

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WV Department of
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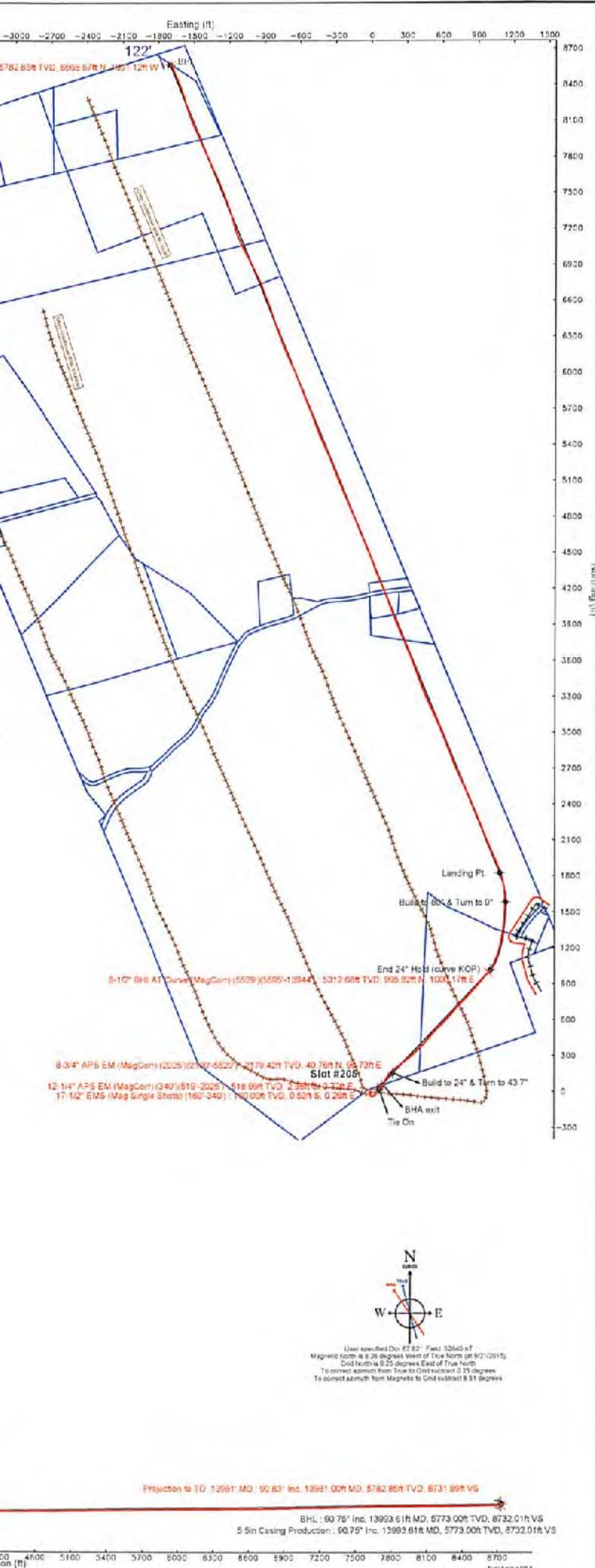
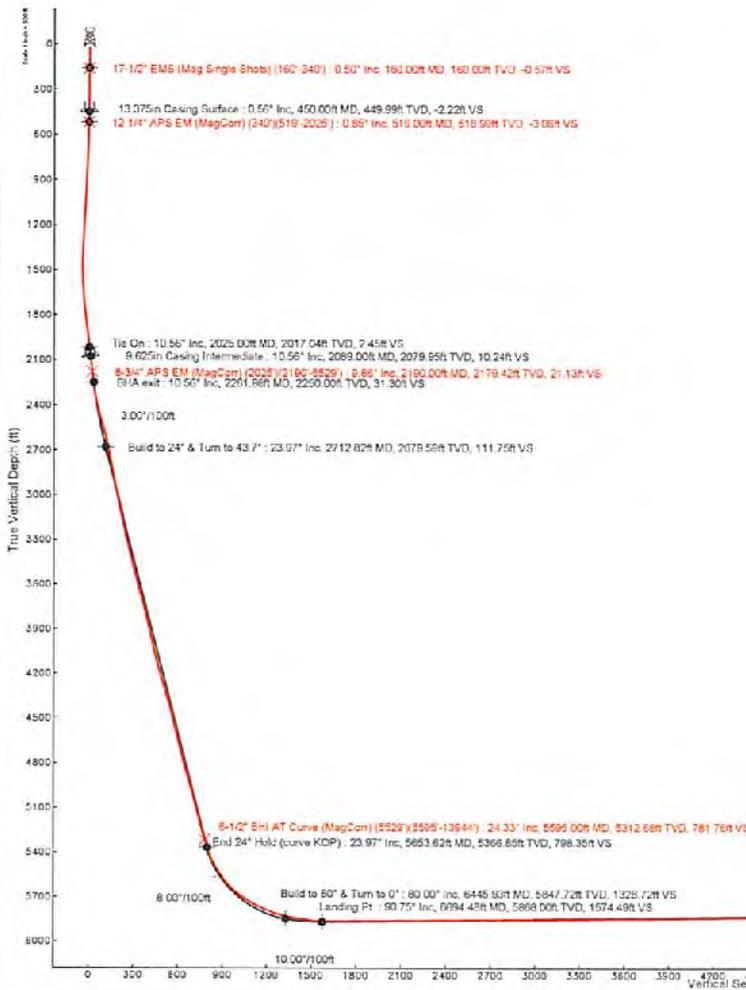
SOUTHWESTERN ENERGY

Location: Brooke County, WV Slot: Slot #205
Field: Brooks Well: Linda Greathouse BRK 205H
Facility: Linda Greathouse BRK Pad Wellbore: Linda Greathouse BRK 205H PWB

Plot reference wellpath is Linda Greathouse BRK 205H PWB Rev-F.0

True vertical depths are referenced to SDG 40 (RRR)	Grid System: NAD83 UTM Zone 17 North US Feet
Measured depths are referenced to SDG 40 (RRR)	North Reference: Grid north
SDG 40 (RRR) to Mean Sea Level: 1165 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot Slot #205): -1129 feet	Deaths are in feet
Coordinates are in feet referenced to Slot	Created by: always on 10/13/2015

Location Information				
Facility Name	Grid East (US Ft)	Grid North (US Ft)	Latitude	Longitude
Linda Greathouse BRK Pad	1750140.330	14201304.530	40°12'14.82"N	80°36'25.304"W
Slot #205	0.00	34.73	40°12'14.829"N	80°36'24.857"W
SDG 40 (RRR) to Mud line (At Slot Slot #205)			205	
Mean Sea Level to Mud line (At Slot Slot #205)			-1129	
SDG 40 (RRR) to Mean Sea Level			1165	



N
W E S

User specified Dev: 47.83° Feet: 52640 ft
Magnetic North is 8.25 degrees West of True North (at 9/21/2015)
Grid North is 0.25 degrees East of True North
To correct azimuth from True to Grid add 0.25 degrees
To correct azimuth from Magnetic to Grid subtract 8.51 degrees

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #205
Area	Brooke County, WV	Well	Linda Greathouse BRK 205H
Field	Brooke	Wellbore	Linda Greathouse BRK 205H 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	10/13/2015 at 11:00:30 AM
Convergence at slot	0.25° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Linda_Greathouse_BRK_205H_AWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.95	34.73	1750175.05	14601305.88	40°12'14.829"N	80°36'24.857"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	1165.00ft
Horizontal Reference Pt	Slot	SDC 40 (RKB) to Mean Sea Level	1165.00ft
Vertical Reference Pt	SDC 40 (RKB)	SDC 40 (RKB) to Mud Line at Slot (Slot #205)	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	348.76°

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Actual Wellpath Report

Linda Greathouse BRK 205H AWP Proj: 13981'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #205
Area	Brooke County, WV	Well	Linda Greathouse BRK 205H
Field	Brooke	Wellbore	Linda Greathouse BRK 205H AWP
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (166 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]	Toolface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
0.00†	0.00	154.080	0.00	0.00	0.00	0.00	1750175.05	14601305.88	40°12'14.829"N	80°36'24.857"W	0.00	0.000	0.00	0.00	0.00	0.00	
26.00	0.00	154.080	26.00	0.00	0.00	0.00	1750175.05	14601305.88	40°12'14.829"N	80°36'24.857"W	0.00	0.000	0.00	154.08	0.00	0.00	
160.00	0.500	154.080	160.00	-0.57	-0.53	0.26	1750175.30	14601305.35	40°12'14.824"N	80°36'24.853"W	0.58	154.080	0.37	127.70	0.37	0.00	17-1/2" EMS (Mag Single Shots) (160'-340')
250.00	0.400	200.280	250.00	-1.21	-1.17	0.32	1750175.37	14601304.71	40°12'14.817"N	80°36'24.853"W	1.22	164.826	0.41	-152.91	-0.11	51.33	
340.00	0.200	112.980	339.99	-1.57	-1.53	0.35	1750175.40	14601304.35	40°12'14.814"N	80°36'24.852"W	1.57	166.968	0.49	76.93	-0.22	-97.00	
519.00	0.850	176.660	518.99	-3.06	-2.98	0.72	1750175.77	14601302.90	40°12'14.800"N	80°36'24.848"W	3.06	166.422	0.44	0.59	0.36	35.58	12-1/4" APS EM (MagCorr) (340')(519'-2025')
612.00	1.850	176.980	611.96	-5.23	-5.16	0.84	1750175.88	14601300.72	40°12'14.778"N	80°36'24.846"W	5.23	170.781	1.08	6.86	1.08	0.34	
705.00	2.490	178.750	704.89	-8.70	-8.68	0.96	1750176.01	14601297.20	40°12'14.743"N	80°36'24.845"W	8.74	173.682	0.69	-35.57	0.69	1.90	
773.00	3.010	171.940	772.81	-11.94	-11.93	1.24	1750176.29	14601293.96	40°12'14.711"N	80°36'24.841"W	11.99	174.046	0.90	174.98	0.76	-10.01	
809.00	2.580	172.780	808.77	-13.69	-13.67	1.48	1750176.52	14601292.22	40°12'14.694"N	80°36'24.838"W	13.75	173.827	1.20	-44.04	-1.19	2.33	
890.00	2.660	171.130	889.69	-17.39	-17.33	2.00	1750177.04	14601288.55	40°12'14.658"N	80°36'24.832"W	17.45	173.427	0.14	-22.27	0.10	-2.04	
983.00	2.970	168.700	982.57	-21.96	-21.83	2.80	1750177.85	14601284.06	40°12'14.613"N	80°36'24.822"W	22.01	172.685	0.36	-92.68	0.33	-2.61	
1075.00	2.970	163.330	1074.45	-26.71	-26.45	3.95	1750179.00	14601279.44	40°12'14.568"N	80°36'24.807"W	26.74	171.500	0.30	14.35	0.00	-5.84	
1168.00	3.160	164.210	1167.32	-31.67	-31.22	5.34	1750180.39	14601274.67	40°12'14.520"N	80°36'24.790"W	31.68	170.292	0.21	-68.47	0.20	0.95	
1261.00	3.670	148.950	1260.15	-37.02	-36.24	7.57	1750182.62	14601269.65	40°12'14.471"N	80°36'24.761"W	37.02	168.195	1.12	-95.50	0.55	-16.41	
1354.00	4.170	114.560	1352.95	-41.80	-40.20	12.19	1750187.23	14601265.70	40°12'14.431"N	80°36'24.702"W	42.00	163.135	2.54	-83.84	0.54	-36.98	
1446.00	5.100	85.050	1444.66	-44.21	-41.23	19.30	1750194.34	14601264.66	40°12'14.421"N	80°36'24.610"W	45.53	154.914	2.74	-62.13	1.01	-32.08	
1539.00	6.580	66.120	1537.18	-43.49	-38.72	28.29	1750203.33	14601267.18	40°12'14.445"N	80°36'24.494"W	47.96	143.842	2.59	-55.80	1.59	-20.35	
1632.00	8.130	52.290	1629.42	-39.39	-32.54	38.37	1750213.40	14601273.35	40°12'14.506"N	80°36'24.364"W	50.31	130.299	2.52	-67.00	1.67	-14.87	
1725.00	8.960	41.880	1721.40	-32.12	-23.12	48.41	1750223.44	14601282.76	40°12'14.598"N	80°36'24.234"W	53.65	115.533	1.88	-57.07	0.89	-11.19	
1817.00	9.900	34.200	1812.15	-22.27	-11.25	57.64	1750232.66	14601294.64	40°12'14.715"N	80°36'24.115"W	58.72	101.043	1.71	159.71	1.02	-8.35	
1910.00	9.740	34.350	1903.79	-11.17	1.84	66.59	1750241.61	14601307.72	40°12'14.844"N	80°36'23.998"W	66.62	88.415	0.18	42.67	-0.17	0.38	
2003.00	10.150	36.660	1995.39	-0.19	14.90	75.95	1750250.96	14601320.77	40°12'14.973"N	80°36'23.877"W	77.39	78.903	0.59	11.87	0.44	2.27	
2025.00	10.560	37.130	2017.04	2.45	18.06	78.32	1750253.34	14601323.93	40°12'15.004"N	80°36'23.846"W	80.38	77.016	1.90	136.93	1.86	2.14	
2190.00	9.860	41.080	2179.42	21.13	40.76	96.73	1750271.74	14601346.65	40°12'15.228"N	80°36'23.608"W	104.97	67.149	0.60	-37.78	-0.42	2.39	8-3/4" APS EM (MagCorr) (2025')(2190'-5529')
2283.00	11.250	35.740	2270.85	32.18	54.13	107.26	1750282.27	14601359.99	40°12'15.359"N	80°36'23.471"W	120.15	63.223	1.83	-21.15	1.49	-5.74	
2376.00	15.580	29.620	2361.30	47.83	72.36	118.74	1750293.74	14601378.21	40°12'15.539"N	80°36'23.322"W	139.05	58.642	4.89	-2.36	4.66	-6.58	
2468.00	19.870	29.100	2448.91	69.10	96.77	132.46	1750307.45	14601402.61	40°12'15.780"N	80°36'23.144"W	164.04	53.849	4.67	18.55	4.66	-0.57	
2561.00	21.990	30.990	2535.77	94.04	125.51	149.11	1750324.10	14601431.34	40°12'16.063"N	80°36'22.928"W	194.90	49.912	2.39	112.33	2.28	2.03	
2654.00	20.890	40.210	2622.36	117.27	153.11	168.79	1750343.77	14601458.93	40°12'16.335"N	80°36'22.673"W	227.88	47.788	3.81	80.07	-1.18	9.91	

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Actual Wellpath Report

Linda Greathouse BRK 205H AWP Proj: 13981'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #205
Area	Brooke County, WV	Well	Linda Greathouse BRK 205H
Field	Brooke	Wellbore	Linda Greathouse BRK 205H AWP
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (166 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]	Toolface [°]	Build Rate [%/100ft]	Turn Rate [%/100ft]	Comments
2747.00	21.750	49.500	2709.02	136.03	176.97	192.60	1750367.57	14601482.78	40°12'16.569"N	80°36'22.364"W	261.56	47.422	3.74	36.09	0.92	9.99	
2839.00	23.420	52.510	2793.96	152.45	199.17	220.07	1750395.03	14601504.97	40°12'16.788"N	80°36'22.009"W	296.82	47.854	2.21	81.87	1.82	3.27	
2932.00	23.510	53.970	2879.27	168.41	221.33	249.74	1750424.69	14601527.12	40°12'17.005"N	80°36'21.625"W	333.70	48.451	0.63	-3.77	0.10	1.57	
3025.00	24.650	53.790	2964.18	184.37	243.70	280.39	1750455.33	14601549.48	40°12'17.225"N	80°36'21.229"W	371.49	49.005	1.23	-132.32	1.23	-0.19	
3118.00	23.980	51.950	3048.93	201.08	266.80	310.92	1750485.85	14601572.58	40°12'17.452"N	80°36'20.834"W	409.70	49.367	1.09	-40.77	-0.72	-1.98	
3210.00	24.730	50.420	3132.74	218.65	290.59	340.47	1750515.39	14601596.36	40°12'17.686"N	80°36'20.452"W	447.62	49.520	1.07	-124.77	0.82	-1.66	
3303.00	24.140	48.290	3217.41	237.53	315.64	369.66	1750544.57	14601621.39	40°12'17.932"N	80°36'20.074"W	486.08	49.508	1.14	-38.95	-0.63	-2.29	
3396.00	25.550	45.690	3301.80	258.12	342.30	398.21	1750573.11	14601648.05	40°12'18.194"N	80°36'19.705"W	525.11	49.318	1.92	-158.32	1.52	-2.80	
3488.00	24.480	44.660	3385.17	279.63	369.72	425.81	1750600.69	14601675.46	40°12'18.464"N	80°36'19.348"W	563.92	49.033	1.26	-155.93	-1.16	-1.12	
3581.00	22.840	42.760	3470.36	301.04	396.68	451.61	1750626.48	14601702.40	40°12'18.729"N	80°36'19.014"W	601.09	48.705	1.94	-78.11	-1.76	-2.04	
3674.00	22.880	42.280	3556.05	322.40	423.31	476.03	1750650.89	14601729.02	40°12'18.991"N	80°36'18.697"W	637.02	48.355	0.21	-33.96	0.04	-0.52	
3767.00	24.080	40.320	3641.35	344.95	451.15	500.47	1750675.32	14601756.86	40°12'19.265"N	80°36'18.381"W	673.80	47.967	1.54	-151.62	1.29	-2.11	
3860.00	23.050	38.890	3726.59	368.41	479.79	524.18	1750699.02	14601785.48	40°12'19.547"N	80°36'18.074"W	710.60	47.532	1.27	140.18	-1.11	-1.54	
3952.00	21.340	42.920	3811.78	389.76	506.07	546.89	1750721.72	14601811.75	40°12'19.806"N	80°36'17.779"W	745.11	47.220	2.49	53.55	-1.86	4.38	
4045.00	22.540	46.980	3898.05	409.06	530.62	571.44	1750746.27	14601836.30	40°12'20.048"N	80°36'17.462"W	779.81	47.121	2.08	-9.65	1.29	4.37	
4138.00	23.900	46.410	3983.51	428.53	555.77	598.12	1750772.94	14601861.44	40°12'20.295"N	80°36'17.116"W	816.48	47.102	1.48	-133.24	1.46	-0.61	
4231.00	22.890	43.580	4068.87	449.03	581.87	624.24	1750799.04	14601887.52	40°12'20.552"N	80°36'16.778"W	853.37	47.012	1.62	-45.65	-1.09	-3.04	
4323.00	23.680	41.600	4153.38	470.50	608.65	648.84	1750823.63	14601914.29	40°12'20.815"N	80°36'16.460"W	889.63	46.831	1.21	-1.17	0.86	-2.15	
4416.00	26.290	41.480	4237.66	494.26	638.05	674.88	1750849.67	14601943.68	40°12'21.105"N	80°36'16.122"W	928.75	46.607	2.81	-134.37	2.81	-0.13	
4509.00	25.160	38.700	4321.45	519.46	668.91	700.89	1750875.66	14601974.53	40°12'21.408"N	80°36'15.785"W	968.85	46.337	1.78	161.96	-1.22	-2.99	
4602.00	23.650	39.930	4406.14	543.88	698.64	725.22	1750899.99	14602004.25	40°12'21.701"N	80°36'15.470"W	1007.00	46.069	1.71	88.97	-1.62	1.32	
4694.00	23.780	45.260	4490.38	565.69	725.85	750.24	1750925.00	14602031.45	40°12'21.969"N	80°36'15.146"W	1043.90	45.947	2.33	38.85	0.14	5.79	
4787.00	25.090	47.710	4575.05	586.21	752.32	778.15	1750952.90	14602057.91	40°12'22.229"N	80°36'14.785"W	1082.36	45.967	1.78	-117.65	1.41	2.63	
4880.00	24.490	44.820	4659.48	607.15	779.26	806.33	1750981.06	14602084.84	40°12'22.494"N	80°36'14.420"W	1121.34	45.978	1.45	-139.64	-0.65	-3.11	
4973.00	23.250	42.100	4744.53	628.87	806.55	832.22	1751006.94	14602112.12	40°12'22.763"N	80°36'14.085"W	1158.93	45.897	1.78	-38.06	-1.33	-2.92	
5065.00	23.800	41.040	4828.88	651.07	834.03	856.58	1751031.30	14602139.59	40°12'23.033"N	80°36'13.769"W	1195.55	45.764	0.75	10.62	0.60	-1.15	
5158.00	24.440	41.330	4913.76	674.24	862.63	881.61	1751056.31	14602168.18	40°12'23.315"N	80°36'13.445"W	1233.44	45.623	0.70	-123.44	0.69	0.31	
5251.00	23.900	39.260	4998.61	697.92	891.66	906.24	1751080.93	14602197.20	40°12'23.601"N	80°36'13.126"W	1271.35	45.464	1.08	141.35	-0.58	-2.23	
5344.00	23.090	40.930	5083.90	721.09	920.03	930.11	1751104.79	14602225.55	40°12'23.880"N	80°36'12.817"W	1308.26	45.312	1.13	47.73	-0.87	1.80	
5437.00	24.510	44.580	5168.99	743.11	947.55	955.60	1751130.27	14602253.06	40°12'24.151"N	80°36'12.486"W	1345.74	45.242	2.20	-78.51	1.53	3.92	

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Linda Greathouse BRK 205H AWP Proj: 13981'
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REFERENCE WELLPATH IDENTIFICATION																		
Operator	SOUTHWESTERN ENERGY										Slot	Slot #205						
Area	Brooke County, WV										Well	Linda Greathouse BRK 205H						
Field	Brooke										Wellbore	Linda Greathouse BRK 205H AWB						
Facility	Linda Greathouse BRK Pad																	

WELLPATH DATA (166 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]	Tooface [°]	Build Rate [%/100ft]	Turn Rate [%/100ft]	Comments
5529.00	24.720	42.310	5252.64	765.26	975.37	981.94	1751156.61	14602280.87	40°12'24.424"N	80°36'12.145"W	1384.03	45.192	1.05	-128.83	0.23	-2.47	
5595.00	24.330	41.120	5312.68	781.76	995.82	1000.17	1751174.83	14602301.31	40°12'24.626"N	80°36'11.909"W	1411.38	45.125	0.95	-101.42	-0.59	-1.80	8-1/2" BHI AT Curve (MagCorr) (5529')(5595'-13944')
5641.00	24.110	38.090	5354.63	793.67	1010.35	1012.20	1751186.85	14602315.84	40°12'24.769"N	80°36'11.753"W	1430.16	45.052	2.74	-54.34	-0.48	-6.59	
5688.00	26.450	31.270	5397.14	807.65	1026.86	1023.56	1751198.21	14602332.34	40°12'24.931"N	80°36'11.606"W	1449.87	44.908	7.94	-40.38	4.98	-14.51	
5734.00	30.520	24.730	5437.57	824.67	1046.24	1033.77	1751208.42	14602351.71	40°12'25.122"N	80°36'11.473"W	1470.81	44.657	11.14	-19.23	8.85	-14.22	
5781.00	34.040	22.550	5477.30	845.27	1069.23	1043.81	1751218.45	14602374.70	40°12'25.349"N	80°36'11.343"W	1494.26	44.311	7.89	6.78	7.49	-4.64	
5827.00	36.280	23.000	5514.91	867.22	1093.65	1054.07	1751228.70	14602399.11	40°12'25.590"N	80°36'11.209"W	1518.93	43.944	4.90	11.76	4.87	0.98	
5873.00	38.090	23.610	5551.55	890.12	1119.19	1065.07	1751239.70	14602424.63	40°12'25.842"N	80°36'11.066"W	1544.97	43.581	4.02	-30.15	3.93	1.33	
5920.00	41.810	20.410	5587.58	915.36	1147.16	1076.34	1751250.97	14602452.60	40°12'26.118"N	80°36'10.919"W	1573.06	43.176	9.04	-35.54	7.91	-6.81	
5966.00	46.450	15.930	5620.60	943.27	1177.59	1086.27	1751260.90	14602483.01	40°12'26.418"N	80°36'10.789"W	1602.09	42.690	12.15	-30.40	10.09	-9.74	
6013.00	50.880	12.620	5651.64	975.11	1211.78	1094.94	1751269.56	14602517.19	40°12'26.756"N	80°36'10.675"W	1633.19	42.100	10.81	-10.71	9.43	-7.04	
6059.00	55.790	11.500	5679.10	1009.00	1247.86	1102.63	1751277.25	14602553.25	40°12'27.112"N	80°36'10.574"W	1665.22	41.465	10.85	-27.28	10.67	-2.43	
6105.00	57.680	10.350	5704.33	1044.62	1285.62	1109.92	1751284.53	14602591.00	40°12'27.485"N	80°36'10.478"W	1698.45	40.805	4.61	-47.99	4.11	-2.50	
6152.00	59.140	8.480	5728.95	1082.08	1325.11	1116.46	1751291.07	14602630.48	40°12'27.875"N	80°36'10.391"W	1732.75	40.116	4.60	-16.53	3.11	-3.98	
6198.00	64.290	6.790	5750.74	1120.40	1365.25	1121.83	1751296.44	14602670.60	40°12'28.271"N	80°36'10.320"W	1767.03	39.410	11.65	-11.08	11.20	-3.67	
6245.00	68.380	5.930	5769.60	1161.42	1408.02	1126.59	1751301.20	14602713.35	40°12'28.693"N	80°36'10.256"W	1803.25	38.664	8.86	-65.08	8.70	-1.83	
6291.00	69.100	4.290	5786.28	1202.55	1450.72	1130.41	1751305.01	14602756.03	40°12'29.115"N	80°36'10.204"W	1839.13	37.926	3.67	-58.89	1.57	-3.57	
6337.00	69.560	3.480	5802.52	1244.10	1493.66	1133.32	1751307.93	14602798.96	40°12'29.539"N	80°36'10.164"W	1874.95	37.190	1.93	-13.82	1.00	-1.76	
6384.00	74.710	2.170	5816.93	1287.48	1538.32	1135.52	1751310.12	14602843.60	40°12'29.981"N	80°36'10.133"W	1912.02	36.433	11.27	-25.30	10.96	-2.79	
6430.00	78.260	0.460	5827.68	1331.13	1583.03	1136.54	1751311.15	14602888.29	40°12'30.422"N	80°36'10.118"W	1948.77	35.677	8.52	-64.25	7.72	-3.72	
6477.00	79.850	357.150	5836.61	1376.56	1629.15	1135.57	1751310.18	14602934.40	40°12'30.878"N	80°36'10.128"W	1985.87	34.878	7.70	-76.08	3.38	-7.04	
6523.00	80.640	353.980	5844.41	1421.57	1674.35	1132.07	1751306.67	14602979.58	40°12'31.325"N	80°36'10.170"W	2021.14	34.064	7.01	-66.67	1.72	-6.89	
6570.00	82.130	350.530	5851.45	1467.94	1720.38	1125.80	1751300.41	14603025.59	40°12'31.780"N	80°36'10.248"W	2056.00	33.200	7.92	-86.15	3.17	-7.34	
6616.00	82.410	346.600	5857.64	1513.52	1765.05	1116.77	1751291.38	14603070.25	40°12'32.222"N	80°36'10.362"W	2088.68	32.322	8.49	-39.88	0.61	-8.54	
6662.00	87.260	342.560	5861.78	1559.18	1809.19	1104.59	1751279.20	14603114.37	40°12'32.659"N	80°36'10.517"W	2119.74	31.406	13.70	-34.30	10.54	-8.78	
6685.00	90.400	340.420	5862.25	1581.99	1830.99	1097.29	1751271.91	14603136.16	40°12'32.874"N	80°36'10.609"W	2134.61	30.934	16.52	-64.95	13.65	-9.30	
6709.00	91.110	338.900	5861.93	1605.69	1853.49	1088.95	1751263.57	14603158.65	40°12'33.097"N	80°36'10.716"W	2149.71	30.435	6.99	-106.86	2.96	-6.33	
6801.00	90.400	336.560	5860.72	1695.97	1938.62	1054.09	1751228.72	14603243.74	40°12'33.940"N	80°36'11.160"W	2206.66	28.534	2.66	-71.56	-0.77	-2.54	
6894.00	90.490	336.290	5860.00	1786.82	2023.85	1016.89	1751191.54	14603328.95	40°12'34.784"N	80°36'11.634"W	2264.96	26.677	0.31	90.00	0.10	-0.29	
6987.00	90.490	336.630	5859.20	1877.68	2109.11	979.75	1751154.42	14603414.17	40°12'35.628"N	80°36'12.108"W	2325.57	24.916	0.37	106.19	0.00	0.37	

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Actual Wellpath Report

Linda Greathouse BRK 205H AWP Proj: 13981'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #205
Area	Brooke County, WV	Well	Linda Greathouse BRK 205H
Field	Brooke	Wellbore	Linda Greathouse BRK 205H AWB
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (166 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]	Toolface [°]	Build Rate [%/100ft]	Turn Rate [%/100ft]	Comments
7030.00	90.400	336.940	5858.48	1968.66	2194.58	943.09	1751117.77	14603499.60	40°12'36.474"N	80°36'12.576"W	2388.64	23.255	0.35	90.00	-0.10	0.33	
7173.00	90.400	337.840	5857.83	2059.83	2280.43	907.34	1751082.03	14603585.42	40°12'37.324"N	80°36'13.032"W	2454.30	21.697	0.97	-62.10	0.00	0.97	
7265.00	90.580	337.500	5857.04	2150.11	2365.52	872.39	1751047.09	14603670.49	40°12'38.167"N	80°36'13.477"W	2521.26	20.244	0.42	-95.71	0.20	-0.37	
7358.00	90.490	336.600	5856.18	2241.17	2451.16	836.12	1751010.85	14603756.09	40°12'39.014"N	80°36'13.940"W	2589.84	18.835	0.97	-91.17	-0.10	-0.97	
7451.00	90.430	333.690	5855.43	2331.54	2535.53	797.04	1750971.78	14603840.43	40°12'39.850"N	80°36'14.439"W	2657.86	17.450	3.13	90.00	-0.06	-3.13	
7543.00	90.430	334.570	5854.74	2420.55	2618.31	756.90	1750931.65	14603923.17	40°12'40.670"N	80°36'14.951"W	2725.52	16.123	0.96	85.29	0.00	0.96	
7636.00	90.620	336.880	5853.89	2511.15	2703.08	718.67	1750893.44	14604007.91	40°12'41.509"N	80°36'15.439"W	2796.98	14.889	2.49	98.72	0.20	2.48	
7729.00	90.310	338.900	5853.13	2602.47	2789.23	683.67	1750858.45	14604094.03	40°12'42.362"N	80°36'15.885"W	2871.80	13.772	2.20	-80.54	-0.33	2.17	
7822.00	90.340	338.720	5852.60	2694.07	2875.94	650.05	1750824.85	14604180.70	40°12'43.220"N	80°36'16.314"W	2948.49	12.737	0.20	-85.10	0.03	-0.19	
7914.00	90.430	337.670	5851.99	2784.51	2961.36	615.88	1750790.69	14604266.09	40°12'44.066"N	80°36'16.749"W	3024.72	11.748	1.15	80.27	0.10	-1.14	
8007.00	90.490	338.020	5851.24	2875.82	3047.49	580.81	1750755.63	14604352.18	40°12'44.918"N	80°36'17.196"W	3102.34	10.790	0.38	-92.19	0.06	0.38	
8100.00	90.370	334.900	5850.54	2966.67	3132.73	543.67	1750718.51	14604437.40	40°12'45.762"N	80°36'17.670"W	3179.56	9.845	3.36	-95.04	-0.13	-3.35	
8192.00	90.340	334.560	5849.97	3055.93	3215.93	504.40	1750679.25	14604520.56	40°12'46.586"N	80°36'18.172"W	3255.24	8.914	0.37	89.23	-0.03	-0.37	
8285.00	90.370	336.820	5849.39	3146.51	3300.68	466.12	1750640.98	14604605.27	40°12'47.425"N	80°36'18.660"W	3333.43	8.038	2.43	87.48	0.03	2.43	
8378.00	90.460	338.870	5848.72	3237.82	3386.80	431.05	1750605.93	14604691.37	40°12'48.278"N	80°36'19.107"W	3414.12	7.253	2.21	85.71	0.10	2.20	
8471.00	90.550	340.070	5847.90	3329.60	3473.89	398.44	1750573.33	14604778.42	40°12'49.140"N	80°36'19.523"W	3496.66	6.543	1.29	-5.71	0.10	1.29	
8563.00	91.350	339.990	5846.38	3420.52	3560.35	367.02	1750541.92	14604864.84	40°12'49.996"N	80°36'19.923"W	3579.21	5.886	0.87	-110.42	0.87	-0.09	
8656.00	90.370	337.360	5844.98	3512.06	3646.96	333.21	1750508.12	14604951.42	40°12'50.853"N	80°36'20.354"W	3662.15	5.220	3.02	-87.09	-1.05	-2.83	
8748.00	90.400	336.770	5844.36	3602.15	3731.68	297.36	1750472.29	14605036.12	40°12'51.692"N	80°36'20.811"W	3743.51	4.556	0.64	-84.96	0.03	-0.64	
8841.00	90.430	336.430	5843.69	3693.06	3817.03	260.42	1750435.37	14605121.43	40°12'52.537"N	80°36'21.282"W	3825.91	3.903	0.37	92.07	0.03	-0.37	
8934.00	90.400	337.260	5843.01	3784.05	3902.54	223.86	1750398.82	14605206.90	40°12'53.384"N	80°36'21.748"W	3908.95	3.283	0.89	89.99	-0.03	0.89	
9027.00	90.400	339.120	5842.36	3875.47	3988.88	189.31	1750364.28	14605293.21	40°12'54.238"N	80°36'22.189"W	3993.37	2.717	2.00	45.00	0.00	2.00	
9119.00	90.800	339.520	5841.40	3966.22	4074.94	156.82	1750331.80	14605379.24	40°12'55.090"N	80°36'22.603"W	4077.96	2.204	0.61	-101.59	0.43	0.43	
9212.00	90.490	338.010	5840.35	4057.80	4161.62	123.14	1750298.14	14605465.89	40°12'55.948"N	80°36'23.032"W	4163.44	1.695	1.66	-92.97	-0.33	-1.62	
9305.00	90.370	335.700	5839.66	4148.79	4247.13	86.59	1750261.60	14605551.36	40°12'56.795"N	80°36'23.498"W	4248.01	1.168	2.49	88.86	-0.13	-2.48	
9397.00	90.400	337.210	5839.04	4238.67	4331.46	49.84	1750224.86	14605635.66	40°12'57.630"N	80°36'23.967"W	4331.75	0.659	1.64	89.00	0.03	1.64	
9490.00	90.430	338.930	5838.36	4330.05	4417.73	15.11	1750190.15	14605721.89	40°12'58.484"N	80°36'24.410"W	4417.75	0.196	1.85	77.90	0.03	1.85	
9583.00	90.460	339.070	5837.64	4421.70	4504.55	-18.22	1750156.83	14605808.68	40°12'59.343"N	80°36'24.834"W	4504.59	359.768	0.15	-85.84	0.03	0.15	
9676.00	90.550	337.830	5836.82	4513.19	4591.04	-52.38	1750122.69	14605895.14	40°13'00.199"N	80°36'25.270"W	4591.34	359.346	1.34	63.43	0.10	-1.33	
9768.00	90.770	337.390	5835.76	4603.45	4676.10	-87.42	1750087.66	14605980.17	40°13'01.041"N	80°36'25.717"W	4676.92	358.929	0.53	-100.19	0.24	-0.48	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #205
Area	Brooke County, WV	Well	Linda Greathouse BRK 205H
Field	Brooke	Wellbore	Linda Greathouse BRK 205H AWP
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (166 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]	Toolface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
9861.00	90.520	336.000	5834.72	4694.39	4761.51	-124.21	1750050.88	14606065.54	40°13'01.887"N	80°36'26.186"W	4763.13	358.506	1.52	156.04	-0.27	-1.49	
9954.00	90.340	336.080	5834.02	4785.10	4846.49	-161.98	1750013.13	14606150.49	40°13'02.729"N	80°36'26.668"W	4849.20	358.086	0.21	78.44	-0.19	0.09	
10047.00	90.430	336.520	5833.39	4875.91	4931.64	-199.36	1749975.77	14606235.61	40°13'03.572"N	80°36'27.145"W	4935.67	357.685	0.48	-95.90	0.10	0.47	
10139.00	90.370	335.940	5832.75	4965.72	5015.84	-236.44	1749938.70	14606319.77	40°13'04.405"N	80°36'27.618"W	5021.41	357.301	0.63	86.83	-0.07	-0.63	
10232.00	90.460	337.570	5832.08	5056.68	5101.28	-273.14	1749902.01	14606405.18	40°13'05.251"N	80°36'28.086"W	5108.59	356.955	1.76	90.96	0.10	1.75	
10325.00	90.430	339.340	5831.35	5148.17	5187.78	-307.29	1749857.88	14606491.65	40°13'06.107"N	80°36'28.522"W	5196.87	356.610	1.90	-83.93	-0.03	1.90	
10418.00	90.620	337.550	5830.50	5239.66	5274.27	-341.45	1749833.72	14606578.10	40°13'06.964"N	80°36'28.957"W	5285.31	356.296	1.94	-88.09	0.20	-1.92	
10511.00	90.710	334.830	5829.42	5330.42	5359.34	-378.99	1749796.20	14606663.14	40°13'07.806"N	80°36'29.436"W	5372.72	355.955	2.93	107.55	0.10	-2.92	
10604.00	90.400	335.810	5828.52	5420.86	5443.84	-417.82	1749757.39	14606747.61	40°13'08.643"N	80°36'29.932"W	5459.85	355.611	1.11	90.39	-0.33	1.05	
10696.00	90.370	340.080	5827.90	5511.21	5529.08	-452.36	1749722.86	14606832.82	40°13'09.486"N	80°36'30.372"W	5547.56	355.323	4.64	-45.46	-0.03	4.64	
10789.00	90.980	339.460	5826.81	5603.06	5616.34	-484.52	1749690.72	14606920.04	40°13'10.350"N	80°36'30.782"W	5637.20	355.069	0.94	-81.30	0.66	-0.67	
10882.00	91.200	338.020	5825.04	5694.62	5702.99	-518.23	1749657.02	14607006.66	40°13'11.208"N	80°36'31.212"W	5726.49	354.808	1.57	-135.42	0.24	-1.55	
10975.00	90.520	337.350	5823.64	5785.88	5789.02	-553.54	1749621.72	14607092.65	40°13'12.060"N	80°36'31.662"W	5815.42	354.538	1.03	89.03	-0.73	-0.72	
11068.00	90.550	339.140	5822.77	5877.31	5875.39	-588.00	1749587.27	14607178.99	40°13'12.915"N	80°36'32.101"W	5904.74	354.285	1.92	-75.21	0.03	1.92	
11160.00	90.740	338.420	5821.74	5967.91	5961.14	-621.30	1749553.99	14607264.71	40°13'13.763"N	80°36'32.526"W	5993.43	354.050	0.81	-90.93	0.21	-0.78	
11253.00	90.680	334.810	5820.59	6058.80	6046.48	-658.21	1749517.10	14607350.02	40°13'14.608"N	80°36'32.996"W	6082.20	353.787	3.88	164.06	-0.06	-3.88	
11346.00	90.400	334.890	5819.71	6149.07	6130.66	-697.73	1749477.59	14607434.16	40°13'15.442"N	80°36'33.501"W	6170.24	353.507	0.31	88.25	-0.30	0.09	
11439.00	90.490	337.860	5818.99	6239.90	6215.86	-734.99	1749440.34	14607519.32	40°13'16.285"N	80°36'33.977"W	6259.16	353.256	3.19	77.24	0.10	3.19	
11532.00	90.800	339.230	5817.94	6331.41	6302.40	-769.01	1749406.34	14607605.84	40°13'17.142"N	80°36'34.410"W	6349.15	353.043	1.51	105.94	0.33	1.47	
11624.00	90.460	340.420	5816.93	6422.29	6388.75	-800.73	1749374.63	14607692.15	40°13'17.997"N	80°36'34.814"W	6438.74	352.856	1.35	74.65	-0.37	1.29	
11717.00	90.770	341.550	5815.93	6514.43	6476.67	-831.03	1749344.34	14607780.04	40°13'18.867"N	80°36'35.200"W	6529.77	352.688	1.26	-87.81	0.33	1.22	
11810.00	90.830	339.970	5814.63	6606.51	6564.47	-861.67	1749313.71	14607867.80	40°13'19.736"N	80°36'35.590"W	6620.78	352.522	1.70	-91.67	0.06	-1.70	
11903.00	90.770	337.930	5813.33	6698.14	6651.25	-895.07	1749280.32	14607954.54	40°13'20.595"N	80°36'36.016"W	6711.20	352.336	2.19	-69.11	-0.06	-2.19	
11995.00	91.140	336.960	5811.80	6788.34	6736.20	-930.36	1749245.05	14608039.46	40°13'21.436"N	80°36'36.466"W	6800.14	352.136	1.13	-94.79	0.40	-1.05	
12088.00	90.800	332.930	5810.22	6878.61	6820.42	-969.73	1749205.70	14608123.65	40°13'22.270"N	80°36'36.968"W	6889.01	351.908	4.35	82.56	-0.37	-4.33	
12181.00	90.950	334.080	5808.80	6968.33	6903.64	-1011.21	1749164.23	14608206.84	40°13'23.094"N	80°36'37.499"W	6977.30	351.667	1.25	-91.01	0.16	1.24	
12274.00	90.890	330.760	5807.31	7057.54	6986.05	-1054.26	1749121.20	14608289.22	40°13'23.910"N	80°36'38.049"W	7065.15	351.418	3.57	90.79	-0.06	-3.57	
12367.00	90.860	332.890	5805.89	7146.50	7068.01	-1098.16	1749077.31	14608371.15	40°13'24.722"N	80°36'38.610"W	7152.82	351.169	2.29	89.48	-0.03	2.29	
12459.00	90.920	340.250	5804.46	7236.35	7152.36	-1134.71	1749040.78	14608455.46	40°13'25.557"N	80°36'39.077"W	7241.81	350.985	8.00	89.57	0.07	8.00	
12552.00	90.950	344.640	5802.94	7328.75	7240.99	-1162.75	1749012.75	14608544.06	40°13'26.434"N	80°36'39.433"W	7333.76	350.877	4.72	-69.11	0.03	4.72	

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Actual Wellpath Report

Linda Greathouse BRK 205H AWP Proj: 13981'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #205
Area	Brooke County, WV	Well	Linda Greathouse BRK 205H
Field	Brooke	Wellbore	Linda Greathouse BRK 205H AWB
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (166 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]	Tooface [°]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
12645.00	91.720	342.620	5800.77	7421.35	7330.20	-1188.95	1748986.55	14608633.23	40°13'27.317"N	80°36'39.766"W	7425.99	350.787	2.32	-100.07	0.83	-2.17	
12738.00	91.110	339.200	5798.48	7513.43	7418.04	-1219.36	1748956.16	14608721.04	40°13'28.186"N	80°36'40.153"W	7517.59	350.665	3.73	-105.94	-0.66	-3.68	
12830.00	90.950	338.640	5796.82	7604.06	7503.87	-1252.44	1748923.09	14608806.84	40°13'29.036"N	80°36'40.575"W	7607.67	350.524	0.63	-81.97	-0.17	-0.61	
12923.00	91.230	336.650	5795.05	7695.30	7589.86	-1287.80	1748887.74	14608892.79	40°13'29.887"N	80°36'41.026"W	7698.34	350.370	2.16	-104.52	0.30	-2.14	
13016.00	90.740	334.760	5793.45	7785.88	7674.61	-1326.06	1748849.50	14608977.51	40°13'30.726"N	80°36'41.514"W	7788.33	350.197	2.10	123.69	-0.53	-2.03	
13109.00	90.340	335.360	5792.58	7876.23	7758.93	-1365.27	1748810.30	14609061.80	40°13'31.561"N	80°36'42.015"W	7878.13	350.020	0.78	-110.56	-0.43	0.65	
13202.00	90.250	335.120	5792.10	7966.65	7843.38	-1404.22	1748771.37	14609146.22	40°13'32.397"N	80°36'42.512"W	7968.09	349.850	0.28	64.65	-0.10	-0.26	
13294.00	90.430	335.500	5791.55	8056.12	7926.97	-1442.65	1748732.96	14609229.77	40°13'33.225"N	80°36'43.003"W	8057.17	349.685	0.46	93.12	0.20	0.41	
13387.00	90.400	336.050	5790.88	8146.74	8011.78	-1480.81	1748694.81	14609314.55	40°13'34.065"N	80°36'43.490"W	8147.48	349.528	0.59	91.19	-0.03	0.59	
13480.00	90.370	337.490	5790.25	8237.71	8097.23	-1517.49	1748658.15	14609399.97	40°13'34.911"N	80°36'43.958"W	8238.20	349.385	1.55	86.70	-0.03	1.55	
13573.00	90.680	342.900	5789.40	8329.63	8184.69	-1548.99	1748626.66	14609487.40	40°13'35.776"N	80°36'44.359"W	8329.98	349.283	5.83	-37.87	0.33	5.82	
13666.00	90.770	342.830	5788.23	8422.13	8273.56	-1576.39	1748599.27	14609576.23	40°13'36.656"N	80°36'44.707"W	8422.40	349.213	0.12	-78.96	0.10	-0.08	
13758.00	91.140	340.930	5786.69	8513.46	8360.98	-1604.99	1748570.68	14609663.62	40°13'37.521"N	80°36'45.071"W	8513.64	349.134	2.10	-91.04	0.40	-2.07	
13851.00	91.050	336.200	5784.91	8604.94	8447.51	-1638.96	1748536.72	14609750.11	40°13'38.377"N	80°36'45.504"W	8605.03	349.020	5.09	135.00	-0.10	-5.09	
13944.00	90.830	336.420	5783.39	8695.74	8532.66	-1676.32	1748499.37	14609835.23	40°13'39.220"N	80°36'45.981"W	8695.77	348.885	0.33	0.00	-0.24	0.24	
13981.00	90.830	336.420	5782.85	8731.89	8566.57	-1691.12	1748484.58	14609869.12	40°13'39.556"N	80°36'46.170"W	8731.89	348.833	0.00		0.00	0.00	Projection to TD: 13981' MD

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #205
Area	Brooke County, WV	Well	Linda Greathouse BRK 205H
Field	Brooke	Wellbore	Linda Greathouse BRK 205H 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 205H BHL Rev-3		5773.00	8564.58	-1701.73	1748473.98	14609867.14	40°13'39.537"N	80°36'46.307"W	point
Linda Greathouse BRK 205H BHL Rev-2 prog		5774.00	8564.58	-1701.73	1748473.98	14609867.14	40°13'39.537"N	80°36'46.307"W	point
Linda Greathouse BRK 205H LP Rev-2 prog		5854.00	1822.68	1093.71	1751268.33	14603127.85	40°12'32.792"N	80°36'10.656"W	point
Linda Greathouse BRK 205H LP Rev-3		5868.00	1822.63	1093.71	1751268.33	14603127.81	40°12'32.792"N	80°36'10.656"W	point

WELLPATH COMPOSITION - Ref Wellbore: Linda Greathouse BRK 205H AWB Ref Wellpath: Linda Greathouse BRK 205H AWP Proj: 13981'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	
26.00	340.00	EMS (Standard)	01_17-1/2" EMS (Mag Single Shots) (160'-340')	Linda Greathouse BRK 205H AWB	
340.00	2025.00	NaviTrak (MagCorr)	02_12-1/4" APS EM (MagCorr) (340')(519'-2025')	Linda Greathouse BRK 205H AWB	
2025.00	5529.00	NaviTrak (MagCorr)	03_8-3/4" APS EM (MagCorr) (2025')(2190'-5529')	Linda Greathouse BRK 205H AWB	
5529.00	13944.00	NaviTrak (MagCorr)	04_8-1/2" BHI AT Curve (MagCorr) (5529')(5595'-13944')	Linda Greathouse BRK 205H AWB	
13944.00	13981.00	Blind Drilling (std)	Projection to bit	Linda Greathouse BRK 205H AWB	

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Actual Wellpath Report
Linda Greathouse BRK 205H AWP Proj: 13981'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #205
Area	Brooke County, WV	Well	Linda Greathouse BRK 205H
Field	Brooke	Wellbore	Linda Greathouse BRK 205H AWB
Facility	Linda Greathouse BRK Pad		

COMMENTS
<p>Wellpath general comments</p> <p>API #: 47-009-00156-0000 BHI Job #: 7502318 RIG: SDC 40 Duration: 10.04.2015 - 10.07.2015 17-1/2" EMS (Mag Single Shots) (160'-340') 12-1/4" APS EM (MagCorr) (340')(519'-2025') 8-3/4" APS EM (MagCorr) (2025')(2190'-5529') 8-1/2" BHI AT Curve (MagCorr) (5529')(5595'-13944') Projection to TD: 13981</p>

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