

SOUTHWESTERN ENERGY

Location: Brooke County, WV Slot: Slot 8H
 Field: Brooke Well: James Seabright BRK 8H
 Facility: James Seabright BRK Pad Wellbore: James Seabright BRK 8H PWB



API: 47-009-00177-0000
 Job#: 8596148
 Rig: SDC-46
 Duration: 06/11/17 - 06/19/17



Plot reference wellpath is James Seabright BRK 8H PWB Rev-B.0	Grid System: NAD83 / UTM Zone 17 North US feet
True vertical depths are referenced to SDC-46 (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to SDC-46 (RKB)	North Reference: Grid north
SDC-46 (RKB) to Mean Sea Level: 1155 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot: Slot 8H): -1129 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: amarcar on 2017-06-23
	Database: WA_MPL_EASTERNUS_Defn

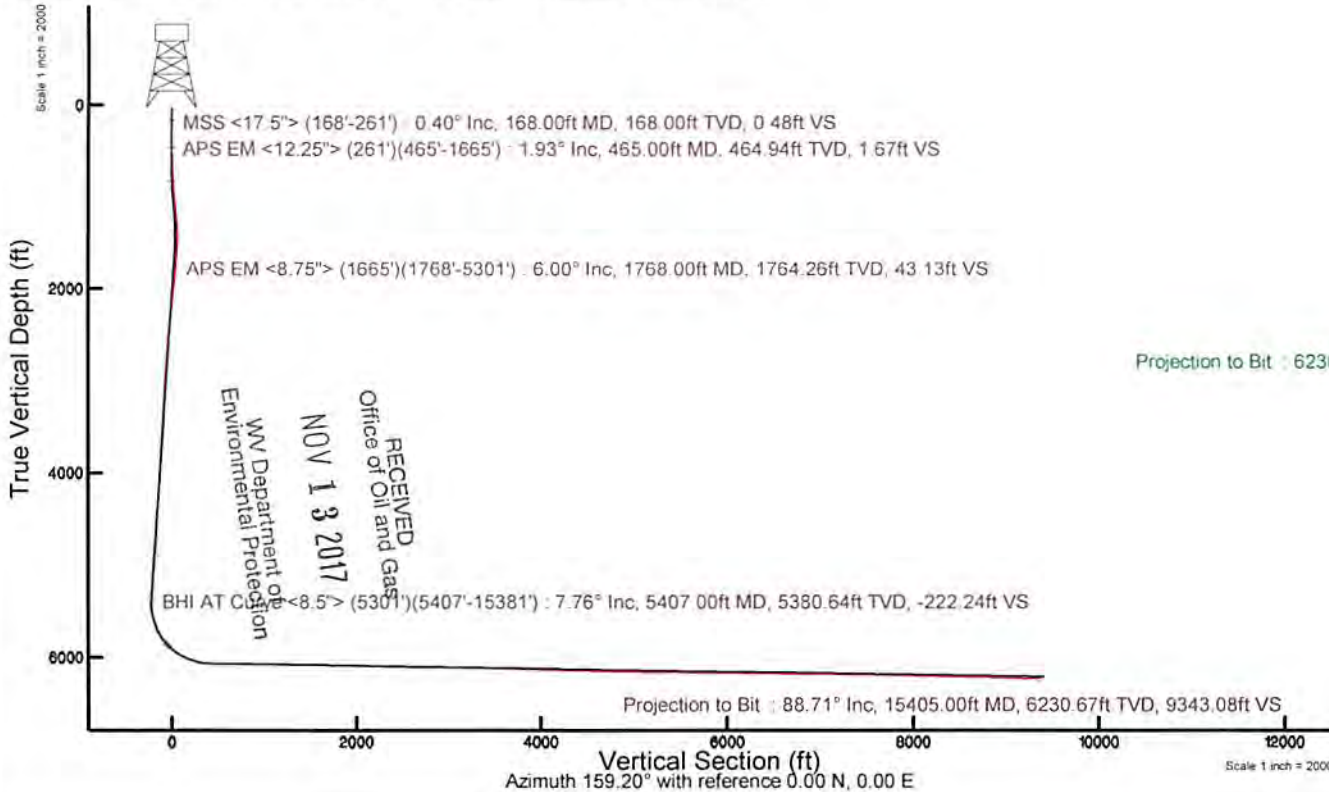
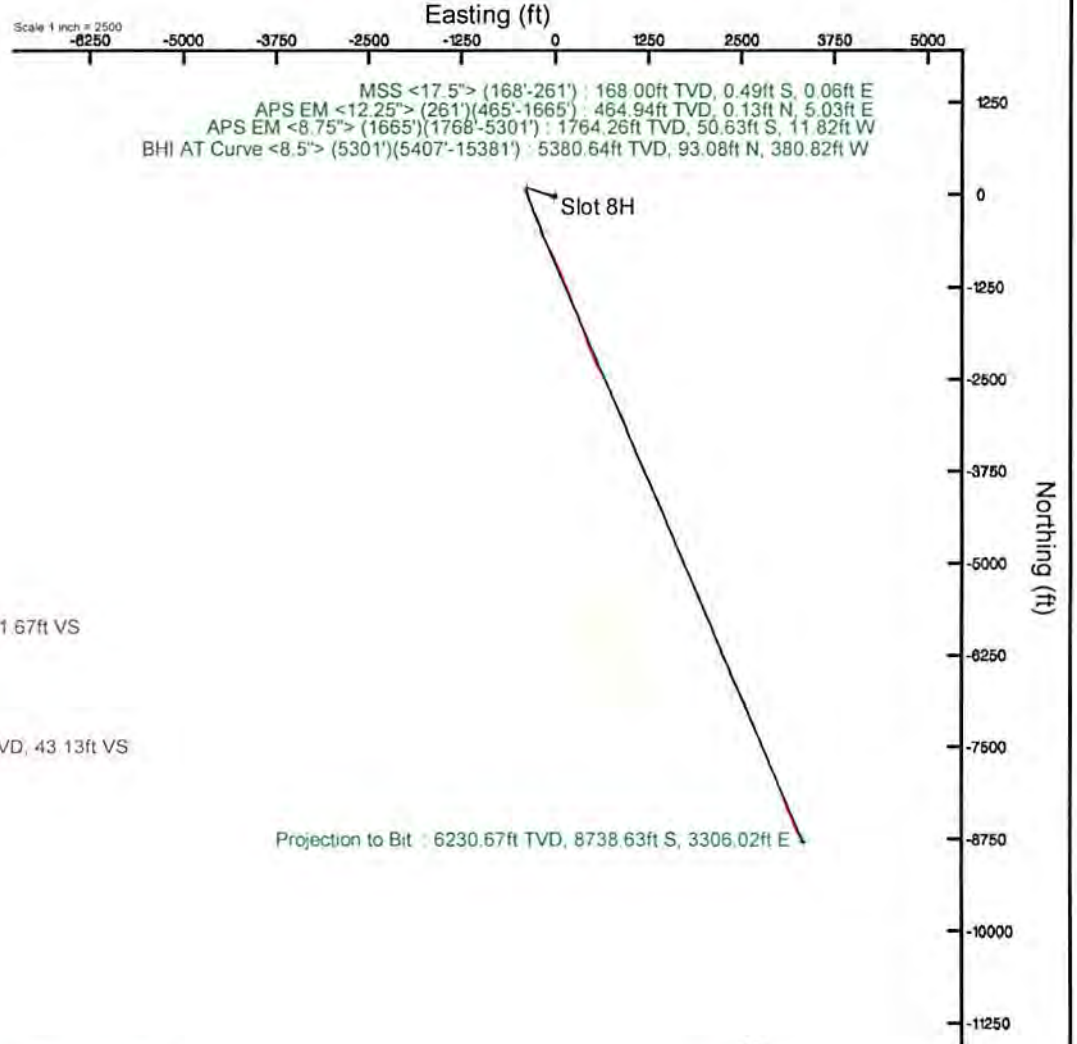
Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude		
James Seabright BRK Pad	1771209.695	14607351.720	40°13'13.587"N	80°31'53.248"W		
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot 8H	3.53	24.21	1771233.900	14607355.250	40°13'13.620"N	80°31'52.936"W

Comment 8H	
SDC-46 (RKB) to Ground level (At Slot: Slot 8H)	26ft
Mean Sea Level to Ground level (At Slot: Slot 8H)	-1129ft
SDC-46 (RKB) to Mean Sea Level	1155ft

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	26.00	0.000	160.000	26.00	0.00	0.00	0.00	0.00
Start Build	700.00	0.000	160.000	700.00	0.00	0.00	0.00	0.00
End Build	950.00	5.000	160.000	949.68	-10.24	3.73	2.00	10.90
Start Build/Turn	1150.00	5.000	160.000	1148.92	-26.62	9.69	0.00	28.33
End Build	1644.62	5.944	289.213	1642.49	-38.48	-7.16	2.00	33.43
Curve KOP	5408.48	5.944	289.213	5386.12	89.79	-375.23	0.00	-217.19
Landing Point	6442.73	89.090	157.000	6065.00	-505.65	-178.46	9.00	409.32
Total Depth	15446.31	89.090	157.000	6208.00	-8792.45	3339.08	0.00	9405.14





Actual Wellpath Report

James Seabright BRK 8H AWP Proj: 15405'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 8H
Area	Brooke County, WV	Well	James Seabright BRK 8H
Field	Brooke	Wellbore	James Seabright BRK 8H AWP
Facility	James Seabright BRK Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Amarcar
Scale	0.999620	Report Generated	23/Jun/2017 at 12:23
Convergence at slot	0.31° East	Database/Source file	WA_MPL_EASTERNUS_Defn/James_Seabright_BRK_8H_AWP_Proj_15405_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	3.53	24.21	1771233.90	14607355.25	40°13'13.620"N	80°31'52.936"W
Facility Reference Pt			1771209.70	14607351.72	40°13'13.587"N	80°31'53.248"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM

Calculation method	Minimum curvature	SDC-46 (RKB) to Facility Vertical Datum	1155.00ft
Horizontal Reference Pt	Slot	SDC-46 (RKB) to Mean Sea Level	1155.00ft
Vertical Reference Pt	SDC-46 (RKB)	SDC-46 (RKB) to Ground Level at Slot (Slot 8H)	26.00ft
MD Reference Pt	SDC-46 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	159.20°

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 Office of Oil and Gas
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 WV Department of
 Environmental Protection



Southwestern Energy

Actual Wellpath Report

James Seabright BRK 8H AWP Proj: 15405



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY
Area	Brooke County, WV
Field	Brooke
Facility	James Seabright BRK Pad
Slot	Slot 8H
Well	James Seabright BRK 8H
Wellbore	James Seabright BRK 8H AWB

WELLPATH DATA (179 stations) † = interpolated/extrapolated station

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	DLS	Build Rate	Turn Rate
(ft)	[°]	[°]	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)		[°/100ft]	[°/100ft]
0.00†	0.000	173.600	0.00	0.00	0.00	0.00	1771233.90	14607355.25	40°13'13.620"N	80°31'52.936"W	0.00	0.00	0.00	0.00
26.00	0.000	173.600	26.00	0.00	0.00	0.00	1771233.90	14607355.25	40°13'13.620"N	80°31'52.936"W	0.00	0.00	0.00	0.00
168.00	0.400	173.600	168.00	0.48	0.48	-0.49	1771233.96	14607354.76	40°13'13.615"N	80°31'52.935"W	0.50	0.28	0.28	122.25
261.00	0.700	56.200	261.00	0.67	-0.50	0.56	1771234.46	14607354.75	40°13'13.615"N	80°31'52.928"W	0.75	1.02	-126.24	-126.24
465.00	1.930	91.090	464.94	1.67	0.13	5.03	1771238.93	14607355.38	40°13'13.621"N	80°31'52.871"W	5.04	88.535	0.69	17.10
511.00	2.120	89.920	510.91	2.26	0.12	6.66	1771240.56	14607355.37	40°13'13.621"N	80°31'52.850"W	6.66	89.009	0.42	-2.54
604.00	2.060	115.750	603.85	4.08	-0.61	9.88	1771243.78	14607354.64	40°13'13.614"N	80°31'52.808"W	9.90	93.523	1.01	-0.06
696.00	2.460	134.720	695.78	7.08	-2.72	12.78	1771246.67	14607352.53	40°13'13.593"N	80°31'52.771"W	13.06	102.002	0.92	20.62
789.00	3.180	149.460	788.67	11.44	-6.34	15.51	1771249.40	14607348.91	40°13'13.557"N	80°31'52.736"W	16.75	112.246	1.09	15.85
882.00	4.170	165.280	881.48	17.34	-11.83	17.68	1771251.57	14607343.42	40°13'13.502"N	80°31'52.708"W	21.27	123.803	1.51	17.01
975.00	4.940	167.340	974.19	24.67	-19.01	19.41	1771253.31	14607336.25	40°13'13.431"N	80°31'52.687"W	27.17	134.402	0.85	2.22
1068.00	5.650	166.090	1066.79	33.18	-27.34	21.47	1771255.36	14607327.92	40°13'13.349"N	80°31'52.661"W	34.76	141.862	0.80	-2.42
1161.00	5.050	172.780	1159.38	41.72	-35.83	23.16	1771257.05	14607319.44	40°13'13.265"N	80°31'52.639"W	42.66	147.119	1.00	-0.65
1253.00	4.400	186.160	1251.07	48.80	-43.35	23.29	1771257.18	14607311.91	40°13'13.191"N	80°31'52.638"W	49.21	151.754	1.39	-0.71
1346.00	4.070	210.920	1343.83	54.02	-49.73	21.21	1771255.10	14607305.54	40°13'13.128"N	80°31'52.665"W	54.07	156.900	1.98	-0.35
1439.00	4.510	242.600	1436.58	56.49	-54.25	16.27	1771250.16	14607301.02	40°13'13.083"N	80°31'52.729"W	56.63	163.305	2.56	0.47
1532.00	4.340	268.590	1529.31	55.74	-56.02	9.50	1771243.40	14607299.25	40°13'13.066"N	80°31'52.817"W	56.82	170.370	2.15	-0.18
1625.00	5.330	282.270	1661.98	52.17	-55.13	1.78	1771235.68	14607300.14	40°13'13.075"N	80°31'52.916"W	55.16	178.454	1.67	15.46
1665.00	5.740	284.270	1661.80	49.99	-54.22	-1.97	1771231.93	14607301.05	40°13'13.085"N	80°31'52.965"W	54.26	182.083	1.07	3.25
1768.00	6.000	295.550	1764.26	43.13	-50.63	-11.82	1771222.08	14607304.64	40°13'13.121"N	80°31'53.091"W	51.99	193.141	1.15	10.95
1815.00	5.970	294.750	1811.00	39.61	-48.55	-16.26	1771217.65	14607306.72	40°13'13.141"N	80°31'53.148"W	51.20	198.513	0.19	-0.06
1908.00	7.350	300.650	1903.37	31.51	-43.49	-25.77	1771208.14	14607311.78	40°13'13.192"N	80°31'53.271"W	50.55	210.645	1.65	1.48
2000.00	7.830	302.850	1994.57	21.86	-37.09	-36.09	1771197.82	14607318.17	40°13'13.256"N	80°31'53.403"W	51.76	224.219	0.61	2.39
2096.00	7.750	303.880	2089.68	11.31	-29.94	-46.96	1771186.96	14607325.32	40°13'13.327"N	80°31'53.543"W	55.69	237.484	0.17	-0.08
2189.00	7.450	303.710	2181.87	1.28	-23.09	-57.18	1771176.74	14607332.18	40°13'13.395"N	80°31'53.674"W	61.67	248.007	0.32	-0.18
2282.00	7.420	300.580	2274.08	-8.32	-16.69	-67.37	1771166.56	14607338.56	40°13'13.459"N	80°31'53.805"W	69.41	256.083	0.44	-0.37
2375.00	7.240	299.980	2366.32	-17.35	-10.98	-77.76	1771156.17	14607344.27	40°13'13.516"N	80°31'53.939"W	78.53	261.963	0.53	-0.19
2467.00	6.850	299.190	2457.63	-25.84	-5.67	-87.72	1771146.22	14607349.58	40°13'13.569"N	80°31'54.067"W	87.90	266.299	0.52	-0.42
2560.00	6.430	300.280	2550.01	-34.14	-0.34	-97.06	1771136.88	14607354.91	40°13'13.622"N	80°31'54.187"W	97.06	269.797	0.47	-0.45
2653.00	7.210	293.450	2642.35	-42.27	4.60	-106.94	1771127.03	14607359.85	40°13'13.671"N	80°31'54.313"W	107.01	272.466	1.21	-0.84

NOV 13 2017

WV Department of Environmental Protection

Actual Wellpath Report

James Seabright BRK 8H AWP Proj: 15405



REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY
Area	Brooke County, WV
Field	Brooke
Facility	James Seabright BRK Pad
Slot	Slot 8H
Well	James Seabright BRK 8H AWP

WELLPATH DATA (179 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(%/100ft)	(%/100ft)	(%/100ft)
2746.00	6.990	292.090	2734.64	-50.19	9.06	-17.50	1771116.44	14607364.30	40°13'13.716"N	80°31'54.450"W	117.85	274.407	0.30	-0.24	-1.46
2839.00	7.440	283.700	2826.90	-57.45	12.61	-128.60	1771105.35	14607367.85	40°13'13.752"N	80°31'54.592"W	129.22	275.600	1.23	0.48	-9.02
2932.00	8.050	280.680	2919.05	-64.27	15.24	-140.85	1771093.11	14607370.49	40°13'13.778"N	80°31'54.750"W	141.67	276.177	0.79	0.66	-3.25
3025.00	7.270	276.040	3011.22	-70.32	17.07	-153.10	1771080.86	14607372.31	40°13'13.797"N	80°31'54.908"W	154.05	276.362	1.07	-0.84	-4.99
3118.00	6.700	277.010	3103.53	-75.51	18.35	-164.33	1771069.63	14607373.59	40°13'13.810"N	80°31'55.053"W	165.36	276.371	0.63	-0.61	-1.04
3211.00	5.940	275.900	3195.97	-80.20	19.51	-174.51	1771059.46	14607374.75	40°13'13.822"N	80°31'55.184"W	175.59	276.378	0.83	-0.82	-1.19
3304.00	5.750	289.760	3288.49	-85.40	21.58	-183.68	1771050.29	14607376.82	40°13'13.843"N	80°31'55.302"W	184.94	276.700	1.53	-0.20	-14.90
3396.00	5.060	291.150	3380.08	-91.10	24.60	-191.80	1771042.17	14607379.84	40°13'13.873"N	80°31'55.406"W	193.37	277.308	0.76	-0.75	1.51
3489.00	5.260	295.100	3472.70	-96.91	27.89	-199.48	1771034.49	14607383.13	40°13'13.906"N	80°31'55.505"W	201.42	277.958	0.44	0.22	4.25
3582.00	4.580	291.810	3565.36	-102.48	31.07	-206.79	1771027.19	14607386.31	40°13'13.938"N	80°31'55.599"W	209.11	278.546	0.79	-0.73	-3.54
3675.00	4.450	298.780	3658.07	-107.74	34.19	-213.40	1771020.58	14607389.43	40°13'13.969"N	80°31'55.684"W	216.12	279.103	0.61	-0.14	7.49
3768.00	4.410	285.120	3750.80	-112.59	36.86	-220.02	1771013.97	14607392.10	40°13'13.999"N	80°31'55.769"W	223.08	279.511	1.13	-0.04	-14.69
3861.00	4.670	290.670	3843.50	-117.19	39.13	-227.01	1771006.98	14607394.36	40°13'14.019"N	80°31'55.859"W	230.36	279.780	0.55	0.28	5.97
3954.00	3.940	293.190	3936.24	-121.92	41.72	-233.49	1771000.50	14607396.96	40°13'14.045"N	80°31'55.943"W	237.19	280.132	0.81	-0.78	2.71
4047.00	4.790	286.220	4028.97	-126.48	44.07	-240.15	1770993.84	14607399.30	40°13'14.068"N	80°31'56.028"W	244.16	280.398	1.08	0.91	-7.49
4143.00	5.370	280.980	4124.59	-131.25	46.04	-248.41	1770985.58	14607401.27	40°13'14.088"N	80°31'56.135"W	252.64	280.500	0.77	0.60	-5.46
4236.00	7.380	288.670	4217.02	-137.34	48.78	-258.35	1770975.65	14607404.01	40°13'14.116"N	80°31'56.263"W	262.91	280.693	2.34	2.16	8.27
4328.00	7.440	291.150	4308.25	-145.08	52.82	-269.50	1770964.50	14607408.05	40°13'14.156"N	80°31'56.406"W	274.63	281.090	0.35	0.07	2.70
4421.00	7.280	292.840	4400.48	-153.17	57.28	-280.54	1770953.46	14607412.51	40°13'14.201"N	80°31'56.548"W	286.33	281.541	0.29	-0.17	1.82
4511.00	6.340	294.280	4489.85	-160.63	61.54	-290.33	1770943.68	14607416.77	40°13'14.244"N	80°31'56.674"W	296.78	281.968	1.06	-1.04	1.60
4604.00	6.110	294.940	4582.30	-167.81	65.74	-299.50	1770934.52	14607420.96	40°13'14.286"N	80°31'56.792"W	306.63	282.380	0.26	-0.25	0.71
4696.00	5.690	295.240	4673.81	-174.60	69.75	-308.06	1770925.95	14607424.97	40°13'14.326"N	80°31'56.902"W	315.86	282.757	0.46	-0.46	0.33
4789.00	5.520	296.970	4766.37	-181.23	73.74	-316.22	1770917.80	14607428.96	40°13'14.365"N	80°31'57.007"W	324.70	283.127	0.26	-0.18	1.86
4882.00	6.540	287.430	4858.85	-187.82	77.36	-325.26	1770908.76	14607432.58	40°13'14.402"N	80°31'57.123"W	334.33	283.378	1.53	1.10	-10.26
4975.00	6.350	286.230	4951.26	-194.19	80.38	-335.25	1770898.78	14607435.60	40°13'14.432"N	80°31'57.252"W	344.75	283.483	0.25	-0.20	-1.29
5067.00	5.890	284.890	5042.74	-200.01	83.02	-344.70	1770889.33	14607438.24	40°13'14.459"N	80°31'57.373"W	354.55	283.541	0.52	-0.50	-1.46
5160.00	5.950	284.880	5135.24	-205.61	85.48	-353.97	1770880.07	14607440.70	40°13'14.483"N	80°31'57.493"W	364.14	283.577	0.06	0.06	-0.01
5253.00	5.980	289.430	5227.74	-211.55	88.33	-363.19	1770870.84	14607443.55	40°13'14.512"N	80°31'57.611"W	373.78	283.669	0.51	0.03	4.89
5301.00	6.470	289.500	5275.46	-214.91	90.06	-368.10	1770865.94	14607445.28	40°13'14.529"N	80°31'57.675"W	378.96	283.749	1.02	1.02	0.15
5407.00	7.760	278.190	5380.64	-222.24	93.08	-380.27	1770853.23	14607448.29	40°13'14.560"N	80°31'57.838"W	392.03	283.735	1.79	1.22	-10.67



Actual Wellpath Report

James Seabright BRK 8H AWP Proj: 15405'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 8H
Area	Brooke County, WV	Well	James Seabright BRK 8H
Field	Brooke	Wellbore	James Seabright BRK 8H AWB
Facility	James Seabright BRK Pad		

WELLPATH DATA (179 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]
5453.00	9.630	251.640	5426.13	-223.91	92.31	-387.55	1770846.50	14607447.52	40°13'14.553"N	80°31'57.925"W	398.39	283.398	9.51	4.07	-57.72
5500.00	12.340	222.660	5472.30	-221.83	87.37	-394.69	1770839.36	14607442.59	40°13'14.504"N	80°31'58.017"W	404.24	282.482	12.90	5.77	-61.66
5546.00	14.220	197.440	5517.11	-215.19	78.36	-399.71	1770834.34	14607433.58	40°13'14.415"N	80°31'58.083"W	407.32	281.091	13.12	4.09	-54.83
5592.00	14.950	177.660	5561.65	-205.12	67.03	-401.17	1770832.89	14607422.26	40°13'14.304"N	80°31'58.102"W	406.73	279.486	10.89	1.59	-43.00
5639.00	14.800	165.800	5607.09	-193.41	55.15	-399.45	1770834.61	14607410.38	40°13'14.186"N	80°31'58.081"W	403.24	277.861	6.47	-0.32	-25.23
5685.00	17.300	161.260	5651.29	-180.73	42.98	-395.81	1770838.24	14607398.21	40°13'14.066"N	80°31'58.035"W	398.13	276.197	6.08	5.43	-9.87
5731.00	21.710	163.260	5694.64	-165.40	28.35	-391.16	1770842.89	14607383.59	40°13'13.921"N	80°31'57.976"W	392.18	274.145	9.69	9.59	4.35
5778.00	26.680	162.350	5737.50	-146.18	9.96	-385.45	1770848.60	14607365.20	40°13'13.739"N	80°31'57.904"W	385.58	271.480	10.60	10.57	-1.94
5824.00	31.600	158.770	5777.67	-123.80	-11.13	-377.95	1770856.09	14607344.12	40°13'13.530"N	80°31'57.808"W	378.11	268.313	11.34	10.70	-7.78
5871.00	36.300	156.710	5816.65	-97.58	-35.41	-367.98	1770866.06	14607319.86	40°13'13.290"N	80°31'57.682"W	369.68	264.504	10.29	10.00	-4.38
5917.00	42.290	156.800	5852.23	-68.48	-62.16	-356.49	1770877.54	14607293.11	40°13'13.025"N	80°31'57.535"W	361.87	260.109	13.02	13.02	0.20
5964.00	46.680	157.590	5885.75	-35.58	-92.52	-343.74	1770890.29	14607262.77	40°13'12.724"N	80°31'57.373"W	355.97	254.936	9.41	9.34	1.68
6010.00	51.430	157.540	5915.89	-0.86	-124.62	-330.48	1770903.54	14607230.68	40°13'12.406"N	80°31'57.204"W	353.20	249.339	10.33	10.33	-0.11
6056.00	56.130	157.450	5943.06	36.23	-158.90	-316.28	1770917.74	14607196.41	40°13'12.067"N	80°31'57.023"W	353.95	243.325	10.22	10.22	-0.20
6103.00	59.540	156.510	5968.08	75.98	-195.51	-300.72	1770933.30	14607159.82	40°13'11.704"N	80°31'56.825"W	358.69	236.971	7.45	7.26	-2.00
6149.00	62.770	156.040	5990.27	116.21	-232.39	-284.51	1770949.50	14607122.95	40°13'11.339"N	80°31'56.619"W	367.35	230.758	7.08	7.02	-1.02
6196.00	67.080	156.460	6010.18	158.72	-271.35	-267.37	1770966.63	14607084.01	40°13'10.953"N	80°31'56.401"W	380.94	224.577	9.21	9.17	0.89
6242.00	70.810	157.100	6026.71	201.60	-310.79	-250.45	1770983.55	14607044.58	40°13'10.562"N	80°31'56.185"W	399.14	218.864	8.21	8.11	1.39
6288.00	74.810	158.190	6040.30	245.52	-351.43	-233.74	1771000.25	14607003.96	40°13'10.160"N	80°31'55.973"W	422.06	213.629	8.99	8.70	2.37
6335.00	79.040	159.700	6050.93	291.29	-394.14	-217.30	1771016.68	14606961.26	40°13'09.737"N	80°31'55.764"W	450.08	208.870	9.53	9.00	3.21
6427.00	85.560	161.520	6063.25	382.38	-480.09	-187.06	1771046.91	14606875.34	40°13'08.886"N	80°31'55.380"W	515.25	201.288	7.35	7.09	1.98
6520.00	89.050	159.420	6067.62	475.23	-567.63	-156.01	1771077.95	14606787.84	40°13'08.019"N	80°31'54.985"W	588.68	195.368	4.38	3.75	-2.26
6613.00	88.950	154.720	6069.25	568.13	-653.24	-119.80	1771114.15	14606702.26	40°13'07.171"N	80°31'54.524"W	664.14	190.392	5.05	-0.11	-5.05
6706.00	88.980	151.290	6070.93	660.55	-736.08	-77.60	1771156.33	14606619.45	40°13'06.351"N	80°31'53.986"W	740.16	186.018	3.69	0.03	-3.69
6799.00	88.980	151.430	6072.58	752.67	-817.69	-33.03	1771200.89	14606537.87	40°13'05.542"N	80°31'53.417"W	818.36	182.313	0.15	0.00	0.15
6891.00	89.020	156.170	6074.19	844.22	-900.20	7.57	1771241.47	14606455.39	40°13'04.724"N	80°31'52.899"W	900.24	179.518	5.15	0.04	5.15
6984.00	89.110	158.060	6075.71	937.14	-985.87	43.73	1771277.62	14606369.76	40°13'03.876"N	80°31'52.439"W	986.84	177.460	2.03	0.10	2.03
7077.00	89.050	157.850	6077.20	1030.11	-1072.06	78.64	1771312.50	14606283.60	40°13'03.022"N	80°31'51.995"W	1074.94	175.805	0.23	-0.06	-0.23
7170.00	89.170	157.440	6078.65	1123.06	-1158.06	114.00	1771347.86	14606197.64	40°13'02.171"N	80°31'51.545"W	1163.66	174.378	0.46	0.13	-0.44
7262.00	89.260	158.340	6079.91	1215.03	-1243.28	148.63	1771382.47	14606112.44	40°13'01.327"N	80°31'51.104"W	1252.14	173.183	0.98	0.10	0.98

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WV Department of
Environment

Actual Wellpath Report

James Seabright BRK 8H AWP Proj: 15405



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Operator	SOUTHWESTERN ENERGY
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Facility	James Seabright BRK Pad
Slot	Slot 8H
	James Seabright BRK 8H
	James Seabright BRK 8H AWP

WELLPATH DATA (179 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude (ft)	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (°/100ft)
7355.00	89.290	6081.08	158.500	1308.02	-1329.76	182.83	1771416.66	14606026.00	40°13'00.47"N	80°31'50.66"W	1342.27	172.171	0.18	0.03	0.17
7448.00	89.290	6082.24	158.000	1400.99	-1416.13	217.29	1771451.11	14605939.66	40°12'59.61"N	80°31'50.23"W	1432.70	171.277	0.54	0.00	-0.54
7541.00	89.320	6083.36	156.340	1493.93	-1501.83	253.37	1771487.17	14605853.99	40°12'58.76"N	80°31'49.77"W	1523.06	170.424	1.79	0.03	-1.78
7633.00	89.320	6084.46	156.990	1585.83	-1586.30	289.81	1771523.60	14605769.55	40°12'57.93"N	80°31'49.30"W	1612.56	169.647	0.71	0.00	0.71
7726.00	89.230	6085.63	160.050	1678.80	-1672.83	322.85	1771557.63	14605683.09	40°12'57.07"N	80°31'48.87"W	1703.89	169.043	3.29	-0.10	3.29
7819.00	88.860	6087.18	161.160	1771.76	-1760.54	354.73	1771588.50	14605595.39	40°12'56.20"N	80°31'48.48"W	1795.92	168.608	1.26	-0.40	1.19
7912.00	88.890	6089.01	162.690	1864.64	-1848.93	383.58	1771617.33	14605507.03	40°12'55.33"N	80°31'48.17"W	1888.30	168.280	1.65	0.03	1.65
8004.00	88.620	6091.01	162.820	1956.44	-1936.77	410.85	1771644.59	14605419.22	40°12'54.46"N	80°31'47.77"W	1979.87	168.023	0.33	-0.29	0.14
8097.00	88.800	6093.10	158.460	2049.36	-2024.47	441.66	1771675.39	14605331.56	40°12'53.59"N	80°31'47.380"W	2072.08	167.693	4.69	0.19	-4.69
8190.00	88.740	6095.10	157.690	2142.32	-2110.72	476.38	1771710.10	14605245.34	40°12'52.73"N	80°31'46.939"W	2163.81	167.282	0.83	-0.06	-0.83
8282.00	88.740	6097.12	157.810	2234.27	-2195.85	511.21	1771744.91	14605160.24	40°12'51.895"N	80°31'46.496"W	2254.57	166.895	0.13	0.00	0.13
8375.00	88.680	6099.22	155.330	2327.14	-2281.15	548.18	1771781.87	14605074.97	40°12'51.050"N	80°31'46.025"W	2346.09	166.488	2.67	-0.06	-2.67
8468.00	88.680	6101.36	151.610	2419.64	-2364.32	589.70	1771823.37	14604991.83	40°12'50.226"N	80°31'45.495"W	2436.75	165.995	4.00	0.00	-4.00
8560.00	88.710	6103.45	151.180	2510.76	-2445.07	633.73	1771867.39	14604911.11	40°12'49.425"N	80°31'44.933"W	2525.87	165.469	0.47	0.03	-0.47
8653.00	88.680	6105.57	154.090	2603.12	-2527.64	676.46	1771910.11	14604828.58	40°12'48.607"N	80°31'44.388"W	2616.59	165.017	3.13	-0.03	3.13
8746.00	89.380	6107.15	155.740	2695.84	-2611.85	715.89	1771949.51	14604744.40	40°12'47.773"N	80°31'43.886"W	2708.18	164.672	1.93	0.75	1.77
8839.00	89.690	6107.90	156.720	2788.71	-2696.96	753.37	1771986.98	14604659.33	40°12'46.930"N	80°31'43.408"W	2800.20	164.393	1.11	0.33	1.05
8931.00	89.320	6108.70	157.750	2880.65	-2781.78	788.97	1772022.57	14604574.53	40°12'46.090"N	80°31'42.955"W	2891.50	164.166	1.19	-0.40	1.12
9024.00	89.350	6109.78	153.810	2973.46	-2866.58	827.11	1772060.69	14604489.77	40°12'45.250"N	80°31'42.470"W	2983.81	163.905	4.24	0.03	-4.24
9117.00	89.350	6110.83	153.640	3066.03	-2949.96	868.28	1772101.84	14604406.42	40°12'44.424"N	80°31'41.945"W	3075.09	163.599	0.18	0.00	-0.18
9210.00	89.260	6111.96	155.510	3158.72	-3033.94	908.20	1772141.75	14604322.47	40°12'43.592"N	80°31'41.436"W	3166.96	163.335	2.01	-0.10	2.01
9303.00	89.050	6113.33	159.160	3251.64	-3119.74	944.03	1772177.56	14604236.70	40°12'42.742"N	80°31'40.980"W	3259.44	163.164	3.93	-0.23	3.92
9395.00	88.620	6115.20	162.060	3343.58	-3206.49	974.56	1772220.09	14604149.98	40°12'41.883"N	80°31'40.592"W	3351.32	163.094	3.19	-0.47	3.15
9488.00	88.520	6117.52	161.360	3436.47	-3294.77	1003.74	1772237.25	14604061.74	40°12'41.009"N	80°31'40.222"W	3444.27	163.057	0.76	-0.11	-0.75
9580.00	88.520	6119.90	159.080	3528.41	-3381.30	1034.86	1772268.36	14603975.24	40°12'40.153"N	80°31'39.827"W	3536.12	162.983	2.48	0.00	-2.48
9673.00	88.550	6122.28	157.950	3621.38	-3467.81	1068.91	1772302.40	14603888.76	40°12'39.296"N	80°31'39.394"W	3628.81	162.889	1.22	0.03	-1.22
9766.00	88.520	6124.66	154.920	3714.23	-3553.02	1103.97	1772339.55	14603803.59	40°12'38.452"N	80°31'38.921"W	3721.20	162.708	3.26	-0.03	-3.26
9858.00	88.460	6127.08	156.500	3806.02	-3636.84	1143.00	1772377.36	14603719.80	40°12'37.622"N	80°31'38.439"W	3812.50	162.540	1.72	-0.07	1.72
9951.00	88.680	6129.40	156.420	3898.89	-3722.08	1181.03	1772414.48	14603634.60	40°12'36.778"N	80°31'37.966"W	3904.96	162.395	0.25	0.24	-0.09
10044.00	88.580	6131.63	153.820	3991.62	-3806.41	1220.15	1772453.58	14603550.29	40°12'35.942"N	80°31'37.468"W	3997.19	162.227	2.80	-0.11	-2.80

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Slot	Slot 8H
James Seabright BRK 8H	Well
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James Seabright BRK 8H AWP	

WELLPATH DATA (179 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(ft)	(°/100ft)	(°/100ft)
10137.00	88.520	154.600	6133.98	4084.23	-3890.12	1260.59	1772494.01	14603466.61	40°12'35.11"N	80°31'36.95"W	4089.27	162.045	0.84	-0.06	0.84
10229.00	88.580	157.620	6136.31	4176.06	-3974.20	1297.84	1772531.24	14603382.57	40°12'34.28"N	80°31'36.47"W	4180.75	161.915	3.28	0.07	3.28
10322.00	88.580	156.040	6138.61	4268.95	-4059.67	1334.42	1772567.81	14603297.13	40°12'33.43"N	80°31'36.01"W	4273.36	161.804	1.70	0.00	-1.70
10415.00	88.520	155.680	6140.97	4361.76	-4144.51	1372.44	1772605.81	14603212.32	40°12'32.59"N	80°31'35.52"W	4365.84	161.678	0.39	-0.06	-0.39
10507.00	88.490	157.640	6143.37	4453.63	-4228.95	1408.87	1772642.33	14603127.92	40°12'31.75"N	80°31'35.06"W	4457.46	161.575	2.13	-0.03	2.13
10600.00	88.550	157.510	6145.77	4546.57	-4314.89	1444.34	1772677.69	14603042.01	40°12'30.90"N	80°31'34.61"W	4550.21	161.493	0.15	0.06	-0.14
10693.00	87.970	159.330	6148.59	4639.51	-4401.33	1478.53	1772711.86	14602955.61	40°12'30.05"N	80°31'34.17"W	4643.03	161.431	2.05	-0.62	1.96
10786.00	88.460	159.420	6151.49	4732.46	-4488.32	1511.27	1772744.59	14602868.64	40°12'29.18"N	80°31'33.76"W	4735.93	161.391	0.54	0.53	0.10
10878.00	88.620	158.790	6153.83	4824.43	-4574.25	1544.07	1772777.38	14602782.75	40°12'28.33"N	80°31'33.34"W	4827.82	161.348	0.71	0.17	-0.68
10971.00	88.550	157.750	6156.13	4917.39	-4660.61	1578.49	1772811.79	14602696.42	40°12'27.48"N	80°31'32.90"W	4920.66	161.289	1.12	-0.08	-1.12
11064.00	89.200	158.920	6157.96	5010.36	-4747.02	1612.82	1772846.10	14602610.04	40°12'26.62"N	80°31'32.47"W	5013.52	161.235	1.44	0.70	1.26
11157.00	89.350	159.550	6159.13	5103.35	-4833.97	1645.79	1772879.06	14602523.13	40°12'25.76"N	80°31'32.05"W	5106.46	161.198	0.70	0.16	0.68
11250.00	89.350	159.680	6160.19	5196.29	-4919.94	1681.20	1772914.45	14602437.19	40°12'24.91"N	80°31'31.60"W	5199.26	161.134	4.16	0.00	-4.16
11343.00	89.290	154.060	6161.29	5289.02	-5004.13	1720.69	1772953.93	14602353.03	40°12'24.08"N	80°31'31.09"W	5291.70	161.024	1.74	-0.06	-1.74
11435.00	89.200	153.800	6162.50	5380.62	-5086.76	1761.11	1772994.34	14602270.43	40°12'23.26"N	80°31'30.58"W	5383.00	160.903	0.30	-0.10	-0.28
11528.00	89.320	153.300	6163.71	5473.16	-5170.02	1802.53	1773035.74	14602187.21	40°12'22.43"N	80°31'30.05"W	5475.24	160.779	0.55	0.13	-0.54
11621.00	89.110	155.690	6164.98	5565.83	-5253.94	1842.57	1773075.77	14602103.31	40°12'21.60"N	80°31'29.54"W	5567.68	160.674	2.58	-0.23	2.57
11714.00	89.380	156.060	6166.21	5658.67	-5338.81	1880.58	1773113.76	14602018.48	40°12'20.76"N	80°31'29.06"W	5660.35	160.595	0.49	0.29	0.40
11806.00	89.320	156.430	6167.25	5750.60	-5423.64	1916.16	1773149.33	14601933.68	40°12'19.92"N	80°31'28.60"W	5752.12	160.542	2.58	-0.07	2.58
11899.00	89.170	158.990	6168.47	5843.59	-5510.29	1949.92	1773183.08	14601847.07	40°12'19.06"N	80°31'28.18"W	5845.12	160.513	0.62	-0.16	0.60
11992.00	89.320	157.930	6169.70	5936.57	-5596.78	1984.07	1773217.21	14601760.61	40°12'18.21"N	80°31'27.74"W	5938.06	160.481	1.15	0.16	-1.14
12085.00	89.260	154.620	6170.85	6029.43	-5681.91	2021.48	1773254.60	14601675.52	40°12'17.36"N	80°31'27.26"W	6030.79	160.416	3.56	-0.06	-3.56
12178.00	89.350	154.660	6171.98	6122.13	-5765.94	2061.31	1773294.42	14601591.52	40°12'16.53"N	80°31'26.76"W	6123.32	160.328	0.11	0.10	0.04
12270.00	89.200	158.460	6173.15	6214.01	-5850.32	2097.89	1773330.99	14601507.16	40°12'15.69"N	80°31'26.29"W	6215.10	160.272	4.13	-0.16	4.13
12363.00	89.230	160.240	6174.42	6307.00	-5937.34	2130.69	1773363.77	14601420.18	40°12'14.83"N	80°31'25.88"W	6308.07	160.259	1.91	0.03	1.91
12456.00	88.890	162.100	6175.95	6399.92	-6025.34	2160.70	1773393.77	14601332.21	40°12'13.96"N	80°31'25.49"W	6401.04	160.272	2.03	-0.37	2.00
12549.00	88.920	159.010	6177.72	6492.87	-6113.01	2191.65	1773424.71	14601244.58	40°12'13.09"N	80°31'25.10"W	6494.02	160.276	3.32	0.03	-3.32
12641.00	89.480	156.160	6179.01	6584.81	-6198.04	2226.72	1773459.77	14601159.58	40°12'12.25"N	80°31'24.66"W	6585.90	160.239	3.16	0.61	-3.10
12734.00	89.450	155.500	6179.88	6677.83	-6282.89	2264.80	1773497.83	14601074.77	40°12'11.41"N	80°31'24.17"W	6678.62	160.177	0.71	-0.03	-0.71
12827.00	89.320	156.300	6180.87	6770.49	-6367.77	2302.77	1773535.79	14600989.91	40°12'10.57"N	80°31'23.69"W	6771.36	160.119	0.87	-0.14	0.86



Southwestern Energy

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(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	[US ft]	[US ft]			(ft)	(°)	[°/100ft]	[°/100ft]	[°/100ft]
12920.00	89.380	160.210	6181.93	6863.45	-6454.13	2337.21	1773570.22	14600903.58	40°12'09.719"N	80°31'23.254"W	6864.29	6864.29	160.093	4.20	0.06
13013.00	89.540	159.420	6182.81	6956.44	-6541.42	2369.30	1773602.30	14600816.33	40°12'08.854"N	80°31'22.846"W	6957.28	6957.28	160.090	0.87	0.17
13105.00	89.320	156.810	6183.72	7048.41	-6626.78	2403.59	1773636.57	14600731.01	40°12'08.009"N	80°31'22.410"W	7049.21	7049.21	160.064	2.85	-0.24
13198.00	89.450	154.470	6184.72	7141.22	-6711.49	2441.95	1773674.91	14600646.33	40°12'07.170"N	80°31'21.922"W	7141.93	7141.93	160.006	2.52	0.14
13288.00	89.350	150.330	6185.66	7230.56	-6791.22	2483.63	1773716.58	14600566.62	40°12'06.380"N	80°31'21.390"W	7231.12	7231.12	159.912	4.60	-0.11
13381.00	89.450	151.810	6186.64	7322.62	-6872.61	2528.62	1773751.55	14600485.27	40°12'05.573"N	80°31'20.816"W	7323.02	7323.02	159.800	1.59	0.11
13474.00	89.420	156.930	6187.55	7415.26	-6956.43	2568.83	1773801.75	14600401.48	40°12'04.743"N	80°31'20.303"W	7415.58	7415.58	159.732	5.51	-0.03
13566.00	89.540	160.000	6188.39	7507.23	-7041.99	2602.59	1773835.50	14600315.95	40°12'03.895"N	80°31'19.874"W	7507.54	7507.54	159.717	3.34	0.13
13658.00	89.200	158.230	6189.40	7599.22	-7127.94	2635.39	1773868.28	14600230.04	40°12'03.044"N	80°31'19.458"W	7599.52	7599.52	159.709	1.96	-0.37
13752.00	88.920	155.500	6190.94	7693.12	-7214.36	2672.31	1773905.19	14600143.65	40°12'02.188"N	80°31'18.988"W	7693.39	7693.39	158.675	2.92	-0.30
13845.00	88.830	155.810	6192.77	7785.93	-7299.07	2710.64	1773943.50	14600058.97	40°12'01.349"N	80°31'18.500"W	7786.14	7786.14	159.627	0.35	-0.10
13938.00	88.520	157.320	6194.92	7878.80	-7384.38	2747.62	1773980.47	14599973.70	40°12'00.504"N	80°31'18.029"W	7878.99	7878.99	159.591	1.66	-0.33
14030.00	88.340	158.970	6197.44	7970.75	-7469.73	2781.85	1774014.69	14599888.38	40°11'59.659"N	80°31'17.594"W	7970.92	7970.92	159.574	1.80	-0.20
14123.00	88.400	160.490	6200.09	8063.70	-7556.93	2814.06	1774046.88	14599801.21	40°11'58.796"N	80°31'17.185"W	8063.88	8063.88	159.576	1.64	0.06
14216.00	88.370	158.150	6202.71	8156.66	-7643.90	2846.88	1774079.69	14599714.27	40°11'57.935"N	80°31'16.768"W	8156.83	8156.83	159.573	2.52	-0.03
14309.00	88.740	155.990	6205.05	8249.56	-7729.52	2883.10	1774115.90	14599628.69	40°11'57.087"N	80°31'16.307"W	8249.71	8249.71	159.545	2.36	0.40
14401.00	88.590	156.280	6207.20	8341.41	-7813.63	2920.31	1774153.10	14599544.61	40°11'56.253"N	80°31'15.833"W	8341.52	8341.52	159.507	0.35	-0.16
14494.00	88.680	155.960	6209.41	8434.24	-7898.64	2957.95	1774190.72	14599459.63	40°11'55.411"N	80°31'15.354"W	8434.34	8434.34	159.470	0.36	0.10
14587.00	88.520	157.560	6211.60	8527.13	-7984.07	2994.64	1774227.39	14599374.23	40°11'54.565"N	80°31'14.887"W	8527.21	8527.21	159.440	1.72	-0.06
14679.00	88.680	158.890	6213.77	8619.09	-8069.48	3028.76	1774261.50	14599288.85	40°11'53.719"N	80°31'14.454"W	8619.16	8619.16	159.427	1.45	0.07
14772.00	88.770	162.530	6215.84	8712.02	-8157.22	3059.46	1774292.19	14599201.15	40°11'52.851"N	80°31'14.064"W	8712.10	8712.10	159.441	3.91	0.10
14865.00	88.680	160.510	6217.91	8804.92	-8245.40	3088.93	1774321.65	14599113.00	40°11'51.978"N	80°31'13.690"W	8805.01	8805.01	159.463	2.17	-0.10
14958.00	88.680	156.420	6220.05	8897.86	-8331.87	3123.06	1774355.76	14599026.57	40°11'51.121"N	80°31'13.257"W	8897.95	8897.95	159.452	4.40	0.00
15050.00	88.740	158.620	6222.13	8989.79	-8416.85	3158.22	1774390.91	14598941.62	40°11'50.280"N	80°31'12.809"W	8989.87	8989.87	159.433	2.39	0.07
15143.00	88.620	159.900	6224.27	9082.77	-8503.80	3191.15	1774423.83	14598854.70	40°11'49.419"N	80°31'12.391"W	9082.84	9082.84	159.431	1.38	-0.13
15236.00	88.620	156.090	6226.51	9175.70	-8589.98	3225.98	1774458.64	14598768.55	40°11'48.562"N	80°31'11.947"W	9175.77	9175.77	159.416	4.10	0.00
15329.00	88.490	150.580	6228.86	9268.15	-8678.03	3267.68	1774500.33	14598685.53	40°11'47.722"N	80°31'11.417"W	9268.19	9268.19	159.355	5.92	-0.14
15381.00	88.710	149.240	6230.13	9319.45	-8718.01	3293.74	1774526.38	14598640.57	40°11'47.296"N	80°31'11.084"W	9319.47	9319.47	159.303	2.61	0.42
15405.00	88.710	149.240	6230.67	9343.08	-8738.63	3306.02	1774538.65	14598619.96	40°11'47.092"N	80°31'11.027"W	9343.09	9343.09	159.277	0.00	0.00

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HOLE & CASING SECTIONS - Ref Wellbore: James Seabright BRK 8H AWB Ref Wellpath: James Seabright BRK 8H AWP Proj: 15405'									
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	26.00	373.00	347.00	26.00	372.98	0.00	0.00	0.03	2.42
13.375in Casing Surface	26.00	353.00	327.00	26.00	352.98	0.00	0.00	-0.03	1.99
12.25in Open Hole	373.00	1738.00	1365.00	372.98	1734.42	0.03	2.42	-51.90	-8.98
9.625in Casing Intermediate	26.00	1725.00	1699.00	26.00	1721.49	0.00	0.00	-52.39	-7.74
8.75in Open Hole	1738.00	5378.00	3640.00	1734.42	5351.90	-51.90	-8.98	92.45	-377.05
8.5in Open Hole	5378.00	15405.00	10027.00	5351.90	6230.67	92.45	-377.05	-8738.63	3306.02

TARGETS									
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	
James Seabright BRK 8H LP Rev-2	6065.00	-505.65	-178.46	1771055.51	14606849.79	40°13'08.633"N	80°31'55.270"W	point	
James Seabright BRK 8H BHL Rev-2	6208.00	-8792.45	3339.08	1774571.70	14598566.16	40°11'46.558"N	80°31'10.505"W	point	

WELLPATH COMPOSITION - Ref Wellbore: James Seabright BRK 8H AWB Ref Wellpath: James Seabright BRK 8H AWP Proj: 15405'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	
26.00	261.00	OWSG EMS rev2 - Standard	01 MSS <17.5"> (168'-261')	James Seabright BRK 8H AWB	
261.00	1665.00	BHI NaviTrak (Axial)	02 APS EM <12.25"> (261')(465'-1665')	James Seabright BRK 8H AWB	
1665.00	5301.00	BHI NaviTrak (Axial)	03 APS EM <8.75"> (1665')(1768'-5301')	James Seabright BRK 8H AWB	
5301.00	15381.00	BHI AutoTrak Curve (Long spacing)	04 BHI AT Curve <8.5"> (5301')(5407'-15381')	James Seabright BRK 8H AWB	
15381.00	15405.00	Blind Drilling (std)	Projection to bit	James Seabright BRK 8H AWB	

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Actual Wellpath Report

James Seabright BRK 8H AWP Proj: 15405'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot 8H
Area	Brooke County, WV	Well	James Seabright BRK 8H
Field	Brooke	Wellbore	James Seabright BRK 8H AWB
Facility	James Seabright BRK Pad		

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
168.00	0.400	173.600	168.00	MSS <17.5"> (168'-261')
465.00	1.930	91.090	464.94	APS EM <12.25"> (261')(465'-1665')
1768.00	6.000	295.550	1764.26	APS EM <8.75"> (1665')(1768'-5301')
5407.00	7.760	278.190	5380.64	BHI AT Curve <8.5"> (5301')(5407'-15381')
15405.00	88.710	149.240	6230.67	Projection to Bit

COMMENTS
<p>Wellpath general comments API: 47-009-00177-0000 Job#: 8596148 Rig: SDC-46 Duration: 06/11/17 - 06/19/17</p>

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