

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47 - 009 - 00235 County BROOKE District BUFFALO
Quad BETHANY Pad Name THOMAS PARKINSON BRK PAD Field/Pool Name PANHANDLE FIELD WET
Farm name BETHANY COLLEGE Well Number THOMAS PARKINSON BRK 201H
Operator (as registered with the OOG) SWN PRODUCTION COMPANY, LLC
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4451460.93 Easting 537093.48
Landing Point of Curve Northing 4451531.13 Easting 536736.53
Bottom Hole Northing 4453860.37 Easting 535895.54

Elevation (ft) 1,160.5 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
SOBM

Date permit issued 2/2/2018 Date drilling commenced 2/17/2018 Date drilling ceased 4/7/2018
Date completion activities began 5/12/2018 Date completion activities ceased 7/12/2018
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

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Freshwater depth(s) ft 401 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 813 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 347 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

GB 1-17-19

Reviewed

C. Hill 1-17-19

API 47- 009 - 00235 Farm name BETHANY COLLEGE Well number THOMAS PARKINSON BRK 201H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24	20	126	NEW	J-55/94#		Y
Surface	17.5	13.375	491	NEW	J-54.50/48#	328.4	Y, 80
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	1738	NEW	J-55/36#		Y, 23
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	15078	NEW	P-110-HC/20#		Y
Tubing		2.375	6321	NEW	P-110/4.7#		N
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	GROUT TO SURFACE				SURFACE	24
Surface	CLASS A	491	15.60	1.20	589.2	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	658	15.60	1.19	783.02	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	2,748	15.60	1.19	3270.12	SURFACE	24
Tubing							

Drillers TD (ft) 15,078 Loggers TD (ft) 15,078
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5,530

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

SURFACE: 7 CENTRALIZERS - EVERY THIRD JOINT OF CASING
 INTERMEDIATE: 24 CENTRALIZERS - EVERY THIRD JOINT OF CASING
 PRODUCTION: 181 CENTRALIZERS - EVERY THIRD JOINT FROM SURFACE TO TOP OF CURVE, THEN EVERY JOINT UNTIL TD

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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SOUTHWESTERN ENERGY

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

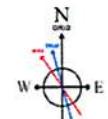
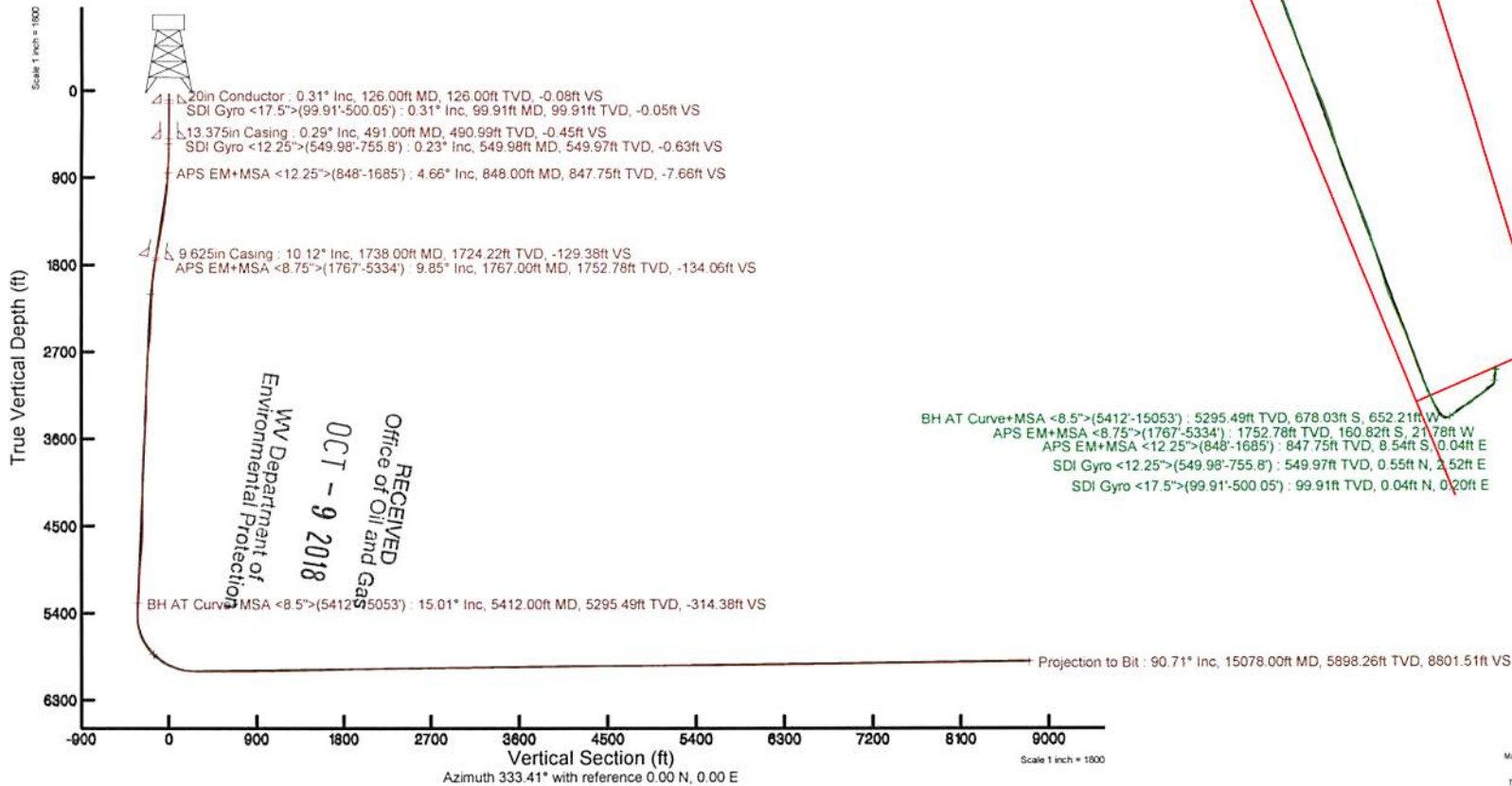


Location Information

Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Thomas Parkinson BRK Pad		1762113.450	14604537.070	40°12'46.220"N	80°33'50.731"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #201H	-35.25	0.27	1762113.716	14604501.830	40°12'45.872"N	80°33'50.730"W
SDC 46 (RKB) to Ground level (At Slot: Slot #201H)				26ft		
Mean Sea Level to Ground level (At Slot: Slot #201H)				-1160.9ft		
SDC 46 (RKB) to Mean Sea Level				1186.9ft		

Plot reference wellpath is Thomas Parkinson BRK 201H PWP Rev-A.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: 1186.9 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot: Slot #201H): -1160.9 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: thomsuzc on 2018-04-11
	Database: WA_Pennsylvania

API: 47-009-00235-0000
 BH Job #: 9067027
 Rig: SDC 46
 Duration: 03/24/2018 - 04/04/2018



User specified Dip: 67.67° Field: 52623-rT
 Magnetic north is 8.34 degrees West of True North (at 3/22/2018)
 Grid north is 0.28 degrees East of True North
 To correct azimuth from True to Grid add/subtract 0.28 degrees
 To correct azimuth from Magnetic to Grid subtract 8.62 degrees

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

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Thomsuzc
Scale	0.999617	Report Generated	4/11/2018 at 11:49:20 AM
Convergence at slot	0.29° East	Database/Source file	WA_Pennsylvania/Thomas_Parkinson_BRK_201H_AWP_Proj_15078_MD.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-35.25	0.27	1762113.72	14604501.83	40°12'45.872"N	80°33'50.730"W
Facility Reference Pt			1762113.45	14604537.07	40°12'46.220"N	80°33'50.731"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	1186.90ft
Horizontal Reference Pt	Slot	SDC 46 (RKB) to Mean Sea Level	1186.90ft
Vertical Reference Pt	SDC 46 (RKB)	SDC 46 (RKB) to Ground Level at Slot (Slot #201H)	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	333.41°

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Actual Wellpath Report

Thomas Parkinson BRK 201H AWP Proj: 15078MD
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Brooke County, WV	Well	Thomas Parkinson BRK 201H
Field	Brooke	Wellbore	Thomas Parkinson BRK 201H AWB
Facility	Thomas Parkinson BRK Pad		

WELLPATH DATA (184 stations) † = interpolated/extrapolated station															
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Dir	DLS	Build Rate	Turn Rate
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]	[ft]	[ft]	[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]
0.00	0.00	78.220	0.00	0.00	0.00	0.00	1762113.72	14604501.83	40°12'45.872"N	80°33'50.730"W	0.00	0.00	0.00	0.00	0.00
26.00	0.00	78.220	26.00	0.00	0.00	0.00	1762113.72	14604501.83	40°12'45.872"N	80°33'50.730"W	0.00	0.00	0.00	0.00	0.00
99.91	0.310	78.220	99.91	-0.05	0.04	0.20	1762113.91	14604501.87	40°12'45.874"N	80°33'50.721"W	0.20	0.20	78.220	0.42	105.83
200.03	0.310	69.380	200.03	-0.15	0.19	0.71	1762114.43	14604502.02	40°12'45.874"N	80°33'50.721"W	0.74	0.74	74.994	0.05	-8.83
300.04	0.410	64.730	300.04	-0.18	0.44	1.29	1762115.01	14604502.27	40°12'45.876"N	80°33'50.713"W	1.36	1.36	71.201	0.10	-4.65
400.41	0.250	81.480	400.40	-0.26	0.63	1.83	1762115.55	14604502.46	40°12'45.878"N	80°33'50.706"W	1.94	1.94	71.160	0.18	-16.69
500.05	0.300	96.580	500.04	-0.47	0.63	2.31	1762116.02	14604502.46	40°12'45.878"N	80°33'50.700"W	2.39	2.39	74.779	0.09	15.15
549.98	0.230	128.160	549.97	-0.63	0.55	2.52	1762116.23	14604502.38	40°12'45.877"N	80°33'50.698"W	2.57	2.57	77.651	0.32	63.25
567.65	0.350	116.530	567.64	-0.71	0.50	2.59	1762116.31	14604502.33	40°12'45.877"N	80°33'50.697"W	2.64	2.64	78.980	0.75	-65.82
599.99	0.340	128.840	599.98	-0.87	0.40	2.75	1762116.47	14604502.23	40°12'45.876"N	80°33'50.694"W	2.78	2.78	81.730	0.23	38.06
649.80	0.720	180.240	649.79	-1.29	-0.01	2.87	1762116.58	14604501.82	40°12'45.872"N	80°33'50.693"W	2.87	2.87	90.105	1.15	103.19
699.99	1.710	195.830	699.97	-2.12	-1.04	2.66	1762116.38	14604500.79	40°12'45.862"N	80°33'50.696"W	2.86	2.86	111.355	2.06	31.06
755.80	2.610	198.520	755.74	-3.05	-3.05	2.03	1762115.75	14604498.78	80°33'50.704"N	80°33'50.704"W	3.66	3.66	146.303	1.62	4.82
848.00	4.660	200.650	847.75	-7.66	-8.54	0.04	1762113.76	14604493.29	40°12'45.788"N	80°33'50.730"W	8.54	8.54	179.704	2.23	2.31
900.00	5.590	201.930	899.54	-10.77	-12.87	-1.65	1762112.07	14604488.97	40°12'45.745"N	80°33'50.752"W	12.97	12.97	187.292	1.80	1.79
974.00	6.900	205.760	973.10	-15.87	-20.22	-4.92	1762108.79	14604481.62	40°12'45.672"N	80°33'50.795"W	20.81	20.81	193.691	1.86	5.18
1066.00	8.870	201.890	1064.23	-23.95	-31.78	-9.97	1762103.75	14604470.07	40°12'45.558"N	80°33'50.861"W	33.30	33.30	197.422	2.22	-4.21
1159.00	9.000	194.700	1156.10	-34.17	-45.47	-14.49	1762099.23	14604456.38	40°12'45.423"N	80°33'50.920"W	47.72	47.72	197.678	1.21	-7.73
1252.00	9.510	192.080	1247.89	-45.63	-60.01	-17.94	1762095.78	14604441.84	40°12'45.280"N	80°33'50.965"W	62.64	62.64	196.647	0.71	-2.82
1345.00	11.420	188.370	1339.34	-59.18	-76.64	-20.89	1762092.83	14604425.22	40°12'45.116"N	80°33'51.004"W	79.43	79.43	195.249	2.18	-3.99
1437.00	12.490	184.050	1429.34	-75.20	-95.57	-22.92	1762090.80	14604406.29	40°12'44.929"N	80°33'51.031"W	98.28	98.28	193.486	1.52	-4.70
1530.00	12.120	179.880	1520.21	-92.60	-115.37	-23.61	1762090.11	14604386.51	40°12'44.733"N	80°33'51.042"W	117.76	117.76	191.566	1.03	-4.48
1623.00	11.510	177.900	1611.24	-109.78	-134.40	-23.25	1762090.47	14604367.48	40°12'44.545"N	80°33'51.038"W	136.40	136.40	189.815	0.79	-2.13
1685.00	10.620	177.900	1612.09	-120.61	-146.29	-22.80	1762090.92	14604355.59	40°12'44.427"N	80°33'51.033"W	148.06	148.06	188.860	1.44	-0.18
1767.00	9.850	173.990	1752.78	-134.06	-160.82	-21.78	1762091.95	14604341.07	40°12'44.284"N	80°33'51.021"W	162.29	162.29	187.712	1.25	-4.63
1814.00	9.340	172.650	1799.12	-141.43	-168.60	-20.87	1762092.86	14604333.29	40°12'44.207"N	80°33'51.010"W	169.89	169.89	187.056	1.18	-2.85
1907.00	8.090	184.120	1891.05	-154.18	-182.61	-20.37	1762093.35	14604319.29	40°12'44.068"N	80°33'51.004"W	183.75	183.75	186.366	2.30	12.33
2000.00	9.550	213.590	1963.00	-163.65	-195.58	-25.11	1762088.61	14604306.33	40°12'43.941"N	80°33'51.066"W	197.18	197.18	187.318	5.04	31.69
2093.00	12.810	227.780	2024.24	-170.27	-208.94	-37.02	1762076.71	14604292.97	40°12'43.809"N	80°33'51.220"W	212.19	212.19	190.049	4.56	15.26
2185.00	11.860	228.270	2024.11	-175.48	-222.08	-51.63	1762062.10	14604279.83	40°12'43.680"N	80°33'51.410"W	228.01	228.01	193.088	1.04	0.53

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Actual Wellpath Report

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Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Brooke County, WV	Well	Thomas Parkinson BRK 201H
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Facility	Thomas Parkinson BRK Pad		

WELLPATH DATA (184 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]
2278.00	12.190	233.250	2255.08	-179.71	-234.32	-66.63	1762047.11	14604267.60	40°12'43.560"N	80°33'51.604"W	243.61	195.874	1.17	0.35	5.35
2371.00	15.000	240.510	2345.47	-182.05	-246.12	-84.98	1762028.77	14604255.80	40°12'43.444"N	80°33'51.841"W	260.38	199.049	3.53	3.02	7.81
2463.00	17.180	238.060	2433.86	-183.92	-259.17	-106.88	1762006.88	14604242.76	40°12'43.316"N	80°33'52.124"W	280.34	202.410	2.48	2.37	-2.66
2556.00	15.980	225.070	2523.02	-189.23	-275.49	-127.60	1761986.16	14604226.45	40°12'43.156"N	80°33'52.392"W	303.60	204.853	4.18	-1.29	-13.97
2648.00	13.470	206.970	2612.04	-199.59	-293.99	-141.44	1761972.33	14604207.95	40°12'42.974"N	80°33'52.572"W	326.24	205.692	5.66	-2.73	-19.67
2741.00	11.440	208.850	2702.85	-211.26	-311.73	-150.80	1761962.97	14604190.22	40°12'42.799"N	80°33'52.693"W	346.29	205.816	2.23	-2.18	2.02
2834.00	9.190	221.240	2794.35	-219.29	-325.39	-160.15	1761953.63	14604176.56	40°12'42.664"N	80°33'52.815"W	362.67	206.205	3.38	-2.42	13.32
2927.00	10.030	231.840	2886.05	-223.72	-335.98	-171.41	1761942.37	14604165.98	40°12'42.560"N	80°33'52.961"W	377.18	207.030	2.10	0.90	11.40
3019.00	12.550	234.550	2976.26	-226.87	-346.73	-185.86	1761927.93	14604155.23	40°12'42.455"N	80°33'53.148"W	393.40	208.193	2.80	2.74	2.95
3112.00	14.470	243.340	3066.70	-228.44	-357.81	-204.48	1761909.32	14604144.16	40°12'42.346"N	80°33'53.388"W	412.11	209.747	3.02	2.06	9.45
3205.00	14.570	243.390	3156.73	-228.45	-368.26	-225.32	1761888.48	14604133.71	40°12'42.244"N	80°33'53.658"W	431.72	211.460	0.11	0.11	0.05
3297.00	15.290	242.000	3245.62	-228.76	-379.14	-246.38	1761867.43	14604122.84	40°12'42.137"N	80°33'53.930"W	452.16	213.017	0.87	0.78	-1.51
3390.00	16.820	237.840	3334.99	-230.37	-392.06	-268.60	1761845.22	14604109.92	40°12'42.011"N	80°33'54.217"W	475.24	214.415	2.06	1.65	-4.47
3483.00	17.310	229.220	3423.91	-235.06	-408.26	-290.47	1761823.36	14604093.73	40°12'41.852"N	80°33'54.500"W	501.05	215.431	2.77	0.53	-9.27
3576.00	14.620	220.930	3513.33	-242.95	-426.17	-308.64	1761805.20	14604075.83	40°12'41.676"N	80°33'54.735"W	526.19	215.913	3.79	-2.89	-8.91
3668.00	10.400	215.790	3603.13	-251.24	-441.68	-321.11	1761792.73	14604060.32	40°12'41.523"N	80°33'54.897"W	546.07	216.018	4.74	-4.59	-5.59
3761.00	8.280	221.200	3694.89	-257.66	-453.53	-330.43	1761783.41	14604048.47	40°12'41.406"N	80°33'55.018"W	561.14	216.076	2.46	-2.28	5.82
3854.00	8.990	226.650	3786.84	-262.29	-463.56	-340.12	1761773.72	14604038.45	40°12'41.308"N	80°33'55.143"W	574.95	216.268	1.16	0.76	5.86
3947.00	9.480	228.940	3878.63	-266.30	-473.58	-351.18	1761762.67	14604028.43	40°12'41.209"N	80°33'55.286"W	589.58	216.559	0.66	0.53	2.46
4039.00	11.080	233.250	3969.15	-269.75	-483.84	-363.98	1761749.88	14604018.17	40°12'41.108"N	80°33'55.452"W	605.46	216.953	1.93	1.74	4.68
4132.00	13.290	241.930	4060.06	-271.60	-494.22	-380.58	1761733.29	14604007.80	40°12'41.007"N	80°33'55.667"W	623.77	217.598	3.08	2.38	9.33
4225.00	12.860	242.340	4150.65	-272.07	-504.06	-399.17	1761714.69	14603997.97	40°12'40.910"N	80°33'55.907"W	642.97	218.376	0.47	-0.46	0.44
4318.00	12.830	243.540	4241.32	-272.24	-513.46	-417.59	1761696.29	14603988.56	40°12'40.818"N	80°33'56.145"W	661.83	219.120	0.29	-0.03	1.29
4410.00	14.170	246.860	4330.78	-271.54	-522.44	-437.09	1761676.80	14603979.59	40°12'40.731"N	80°33'56.397"W	681.17	219.917	1.68	1.46	3.61
4503.00	16.280	247.410	4420.51	-269.95	-531.92	-459.59	1761654.30	14603970.11	40°12'40.638"N	80°33'56.687"W	702.97	220.828	2.27	2.27	0.59
4596.00	17.770	242.060	4509.44	-269.37	-543.58	-484.17	1761629.74	14603958.46	40°12'40.524"N	80°33'57.005"W	727.94	221.691	2.32	1.60	-5.75
4688.00	19.610	238.180	4596.59	-271.11	-558.30	-509.69	1761604.22	14603943.74	40°12'40.380"N	80°33'57.335"W	755.97	222.394	2.41	2.00	-4.22
4777.00	17.920	232.630	4680.86	-275.03	-574.49	-533.27	1761580.65	14603927.56	40°12'40.221"N	80°33'57.640"W	783.84	222.869	2.76	-1.90	-6.24
4870.00	15.380	220.010	4769.98	-282.61	-592.63	-552.58	1761561.35	14603909.43	40°12'40.043"N	80°33'57.890"W	810.28	222.997	4.74	-2.73	-13.57
4963.00	13.080	218.190	4860.12	-291.99	-610.35	-567.01	1761546.92	14603891.72	40°12'39.868"N	80°33'58.077"W	833.08	222.892	2.52	-2.47	-1.96

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Actual Wellpath Report

Thomas Parkinson BRK 201H AWP Proj: 15078'MD
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Brooke County, WV	Well	Thomas Parkinson BRK 201H
Field	Brooke	Wellbore	Thomas Parkinson BRK 201H AWB
Facility	Thomas Parkinson BRK Pad		

WELLPATH DATA (184 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]
5056.00	12.280	225.770	4950.86	-299.48	-625.52	-580.61	1761533.33	14603876.55	40°12'39.719"N	80°33'58.253"W	853.45	222.868	1.98	-0.86	8.15
5149.00	13.330	236.280	5041.56	-303.81	-638.37	-596.61	1761517.33	14603863.71	40°12'39.593"N	80°33'58.460"W	873.76	223.064	2.74	1.13	11.30
5241.00	15.490	238.740	5130.66	-306.12	-650.63	-615.94	1761498.01	14603851.45	40°12'39.472"N	80°33'58.710"W	895.94	223.431	2.44	2.35	2.67
5334.00	15.630	231.850	5220.26	-309.64	-664.82	-636.41	1761477.55	14603837.27	40°12'39.333"N	80°33'58.975"W	920.33	223.749	1.99	0.15	-7.41
5412.00	15.010	228.300	5295.49	-314.38	-678.03	-652.21	1761461.75	14603824.06	40°12'39.203"N	80°33'59.179"W	940.80	223.888	1.44	-0.79	-4.55
5505.00	15.420	232.720	5385.23	-319.82	-693.53	-671.04	1761442.93	14603808.57	40°12'39.051"N	80°33'59.423"W	965.03	224.056	1.32	0.44	4.75
5551.00	15.580	243.350	5429.57	-320.96	-700.01	-681.43	1761432.54	14603802.09	40°12'38.988"N	80°33'59.557"W	976.91	224.230	6.18	0.35	23.11
5598.00	15.860	255.700	5474.82	-319.60	-704.43	-693.30	1761420.68	14603797.68	40°12'38.945"N	80°33'59.711"W	988.37	224.544	7.13	0.60	26.28
5644.00	18.390	267.650	5518.79	-315.28	-706.28	-706.65	1761407.34	14603795.83	40°12'38.927"N	80°33'59.883"W	999.09	225.015	9.39	5.50	25.98
5690.00	18.660	279.060	5562.42	-308.01	-705.41	-721.17	1761392.82	14603796.69	40°12'38.936"N	80°34'00.070"W	1008.81	225.633	7.89	0.59	24.80
5737.00	21.720	288.240	5606.54	-297.49	-701.51	-736.86	1761377.14	14603800.59	40°12'38.975"N	80°34'00.272"W	1017.39	226.408	9.35	6.51	19.53
5783.00	26.040	299.490	5648.62	-283.09	-693.86	-753.75	1761360.25	14603808.23	40°12'39.052"N	80°34'00.489"W	1024.50	227.369	13.61	9.39	24.46
5830.00	29.980	310.090	5690.13	-263.73	-681.21	-771.73	1761342.28	14603820.88	40°12'39.178"N	80°34'00.720"W	1029.38	228.565	13.48	8.38	22.55
5876.00	32.810	319.840	5729.42	-241.04	-664.27	-788.58	1761325.44	14603837.82	40°12'39.346"N	80°34'00.936"W	1031.07	229.890	12.62	6.15	21.20
5922.00	37.180	327.240	5767.11	-215.08	-643.04	-804.15	1761309.87	14603859.04	40°12'39.557"N	80°34'01.136"W	1029.64	231.353	13.23	9.50	16.09
5969.00	41.300	331.180	5803.51	-185.45	-617.49	-819.32	1761294.71	14603884.58	40°12'39.810"N	80°34'01.330"W	1025.96	232.996	10.24	8.77	8.38
6015.00	46.190	334.260	5836.73	-153.66	-589.22	-833.86	1761280.18	14603912.84	40°12'40.090"N	80°34'01.515"W	1021.03	234.754	11.59	10.63	6.70
6062.00	50.890	335.610	5867.84	-118.46	-557.32	-848.76	1761265.28	14603944.73	40°12'40.406"N	80°34'01.705"W	1015.38	236.710	10.23	10.00	2.87
6108.00	56.240	336.570	5895.15	-81.51	-523.49	-863.75	1761250.30	14603978.54	40°12'40.741"N	80°34'01.896"W	1010.00	238.781	11.75	11.63	2.09
6154.00	60.680	336.360	5919.21	-42.37	-487.56	-879.40	1761234.66	14604014.46	40°12'41.097"N	80°34'02.096"W	1005.51	240.995	9.66	9.65	-0.46
6200.00	66.440	335.770	5939.68	-1.24	-449.93	-896.11	1761217.95	14604052.07	40°12'41.469"N	80°34'02.309"W	1002.72	243.339	12.57	12.52	-1.28
6247.00	69.360	334.110	5957.36	42.28	-410.49	-914.56	1761199.51	14604091.49	40°12'41.860"N	80°34'02.544"W	1002.46	245.827	7.02	6.21	-3.53
6293.00	74.290	335.290	5971.71	85.96	-370.99	-933.22	1761180.85	14604130.98	40°12'42.251"N	80°34'02.782"W	1004.26	248.320	10.99	10.72	2.57
6340.00	77.810	335.720	5983.04	131.54	-329.49	-952.13	1761161.95	14604172.47	40°12'42.662"N	80°34'03.023"W	1007.53	250.912	7.54	7.49	0.91
6386.00	82.090	336.270	5991.06	176.77	-288.12	-970.55	1761143.54	14604213.82	40°12'43.072"N	80°34'03.258"W	1012.41	253.466	9.38	9.30	1.20
6433.00	85.840	336.580	5996.00	223.44	-245.29	-989.24	1761124.86	14604256.63	40°12'43.496"N	80°34'03.496"W	1019.20	256.074	8.01	7.98	0.66
6479.00	88.460	337.180	5998.29	269.30	-203.04	-1007.28	1761106.83	14604298.87	40°12'43.914"N	80°34'03.726"W	1027.54	258.603	5.84	5.70	1.30
6525.00	90.650	337.280	5998.65	315.19	-160.63	-1025.08	1761089.03	14604341.26	40°12'44.334"N	80°34'03.953"W	1037.59	261.094	4.77	4.76	0.22
6618.00	89.940	338.540	5998.17	407.90	-74.46	-1060.05	1761054.07	14604427.40	40°12'45.187"N	80°34'04.398"W	1062.66	265.982	1.56	-0.76	1.35
6711.00	89.970	340.220	5998.24	500.39	12.58	-1092.80	1761021.33	14604514.40	40°12'46.049"N	80°34'04.815"W	1092.87	270.660	1.81	0.03	1.81

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

WELLPATH DATA (184 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]
6803.00	89.480	340.180	5998.68	591.74	99.14	-1123.97	1760990.18	14604600.93	40°12'46.906"N	80°34'05.211"W	1128.33	275.041	0.53	-0.53	-0.04
6896.00	89.510	340.210	5999.50	684.09	186.64	-1155.47	1760958.69	14604688.39	40°12'47.772"N	80°34'05.612"W	1170.45	279.175	0.05	0.03	0.03
6942.00	90.250	340.230	5999.60	729.76	229.92	-1171.04	1760943.13	14604731.66	40°12'48.201"N	80°34'05.810"W	1193.40	281.108	1.61	1.61	0.04
6989.00	90.280	339.630	5999.38	776.46	274.07	-1187.17	1760927.00	14604775.79	40°12'48.638"N	80°34'06.015"W	1218.39	282.999	1.28	0.06	-1.28
7035.00	90.250	340.580	5999.17	822.14	317.32	-1202.82	1760911.36	14604819.03	40°12'49.066"N	80°34'06.214"W	1243.98	284.779	2.07	-0.07	2.07
7081.00	91.050	340.950	5998.65	867.76	360.75	-1217.98	1760896.21	14604862.44	40°12'49.496"N	80°34'06.407"W	1270.28	286.499	1.92	1.74	0.80
7128.00	91.050	340.610	5997.79	914.37	405.12	-1233.45	1760880.74	14604906.80	40°12'49.935"N	80°34'06.603"W	1298.27	288.183	0.72	0.00	-0.72
7174.00	91.020	339.980	5996.96	960.03	448.42	-1248.95	1760865.24	14604950.08	40°12'50.364"N	80°34'06.800"W	1327.01	289.750	1.37	-0.07	-1.37
7267.00	91.020	338.090	5995.30	1052.56	535.25	-1282.22	1760831.99	14605036.87	40°12'51.223"N	80°34'07.224"W	1389.45	292.657	2.03	0.00	-2.03
7359.00	91.020	337.290	5993.66	1144.29	620.34	-1317.14	1760797.08	14605121.94	40°12'52.066"N	80°34'07.669"W	1455.92	295.219	0.87	0.00	-0.87
7452.00	90.980	337.200	5992.04	1237.07	706.09	-1353.11	1760761.13	14605207.65	40°12'52.915"N	80°34'08.127"W	1526.26	297.557	0.11	-0.04	-0.10
7545.00	91.050	335.830	5990.39	1329.91	791.37	-1390.16	1760724.09	14605292.90	40°12'53.759"N	80°34'08.599"W	1599.63	299.651	1.47	0.08	-1.47
7638.00	91.080	337.410	5988.66	1422.75	876.72	-1427.06	1760687.21	14605378.21	40°12'54.604"N	80°34'09.069"W	1674.85	301.565	1.70	0.03	1.70
7731.00	90.990	337.620	5986.98	1515.49	962.64	-1462.62	1760651.66	14605464.10	40°12'55.455"N	80°34'09.522"W	1750.98	303.351	0.25	-0.10	0.23
7823.00	91.080	338.390	5985.32	1607.18	1047.93	-1497.07	1760617.22	14605549.35	40°12'56.300"N	80°34'09.961"W	1827.39	304.991	0.84	0.10	0.84
7916.00	91.660	342.260	5983.10	1699.46	1135.45	-1528.37	1760585.94	14605636.85	40°12'57.166"N	80°34'10.359"W	1903.99	306.609	4.21	0.62	4.16
8009.00	91.750	345.210	5980.33	1790.91	1224.68	-1554.40	1760559.91	14605726.04	40°12'58.049"N	80°34'10.689"W	1978.89	308.234	3.17	0.10	3.17
8101.00	91.880	344.000	5977.41	1881.11	1313.34	-1578.81	1760535.51	14605814.66	40°12'58.926"N	80°34'10.998"W	2053.65	309.755	1.32	0.14	-1.32
8194.00	91.480	343.240	5974.69	1972.60	1402.52	-1605.03	1760509.31	14605903.81	40°12'59.809"N	80°34'11.330"W	2131.47	311.148	0.92	-0.43	-0.82
8287.00	90.770	342.810	5972.86	2064.27	1491.45	-1632.17	1760482.17	14605992.71	40°13'00.689"N	80°34'11.675"W	2210.98	312.421	0.89	-0.76	-0.46
8380.00	90.920	341.990	5971.49	2156.12	1580.09	-1660.29	1760454.06	14606081.31	40°13'01.566"N	80°34'12.032"W	2292.00	313.582	0.90	0.16	-0.88
8472.00	90.250	340.640	5970.55	2247.24	1667.23	-1689.76	1760424.60	14606168.42	40°13'02.429"N	80°34'12.406"W	2373.81	314.615	1.64	-0.73	-1.47
8565.00	90.550	342.130	5969.90	2339.33	1755.36	-1719.45	1760394.93	14606256.52	40°13'03.301"N	80°34'12.783"W	2457.19	315.592	1.63	0.32	1.60
8658.00	91.110	343.460	5968.55	2431.07	1844.19	-1746.95	1760367.44	14606345.31	40°13'04.180"N	80°34'13.132"W	2540.25	316.551	1.55	0.60	1.43
8751.00	90.950	343.320	5966.88	2522.65	1933.29	-1773.53	1760340.87	14606434.38	40°13'05.062"N	80°34'13.469"W	2623.55	317.468	0.23	-0.17	-0.15
8843.00	90.740	342.020	5965.53	2613.44	2021.11	-1800.93	1760313.48	14606522.16	40°13'05.931"N	80°34'13.817"W	2707.07	318.297	1.43	-0.23	-1.41
8936.00	90.800	339.780	5964.28	2705.63	2108.97	-1831.36	1760283.06	14606609.99	40°13'06.801"N	80°34'14.204"W	2793.14	319.030	2.41	0.06	-2.41
9029.00	90.890	339.090	5962.90	2798.11	2196.04	-1864.02	1760250.41	14606697.02	40°13'07.663"N	80°34'14.620"W	2880.48	319.675	0.75	0.10	-0.74
9121.00	90.620	337.620	5961.69	2889.76	2281.54	-1897.95	1760216.49	14606782.49	40°13'08.509"N	80°34'15.052"W	2967.77	320.244	1.62	-0.29	-1.60
9214.00	90.680	337.190	5960.64	2982.52	2367.40	-1933.68	1760180.78	14606868.31	40°13'09.359"N	80°34'15.507"W	3056.75	320.758	0.47	0.06	-0.46

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

WELLPATH DATA (184 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]	
9307.00	90.800	336.280	5959.44	3075.36	2452.83	-1970.41	1760144.06	14606953.71	40°13'10.205"N	80°34'15.975"W	3146.25	321.224	0.99	0.13	-0.98	
9400.00	90.860	337.520	5958.09	3168.17	2538.36	-2006.90	1760107.59	14607039.21	40°13'11.052"N	80°34'16.440"W	3235.88	321.669	1.33	0.06	1.33	
9492.00	90.920	338.770	5956.66	3259.85	2623.73	-2041.14	1760073.36	14607124.55	40°13'11.898"N	80°34'16.876"W	3324.19	322.119	1.36	0.07	1.36	
9585.00	90.830	338.470	5955.24	3352.45	2710.32	-2075.04	1760039.48	14607211.11	40°13'12.755"N	80°34'17.308"W	3413.45	322.562	0.34	-0.10	-0.32	
9678.00	90.890	339.350	5953.84	3445.01	2797.08	-2108.50	1760006.03	14607297.84	40°13'13.614"N	80°34'17.734"W	3502.78	322.990	0.95	0.06	0.95	
9771.00	90.920	339.630	5952.38	3537.48	2884.18	-2141.08	1759973.46	14607384.90	40°13'14.476"N	80°34'18.148"W	3592.03	323.412	0.30	0.03	0.30	
9863.00	90.950	341.700	5950.87	3628.72	2970.97	-2171.53	1759943.02	14607471.66	40°13'15.335"N	80°34'18.535"W	3679.98	323.836	2.25	0.03	2.25	
9956.00	90.990	343.110	5949.30	3720.57	3059.61	-2199.64	1759914.92	14607560.26	40°13'16.212"N	80°34'18.892"W	3768.24	324.287	1.52	0.04	1.52	
10048.00	90.340	343.020	5948.23	3811.26	3147.61	-2226.44	1759888.13	14607648.23	40°13'17.083"N	80°34'19.232"W	3855.45	324.727	0.71	-0.71	-0.10	
10141.00	90.550	343.730	5947.51	3902.85	3236.72	-2253.05	1759861.54	14607737.30	40°13'17.965"N	80°34'19.570"W	3943.67	325.159	0.80	0.23	0.76	
10234.00	90.590	343.900	5946.58	3994.32	3326.03	-2278.97	1759835.63	14607826.58	40°13'18.849"N	80°34'19.898"W	4031.89	325.581	0.19	0.04	0.18	
10326.00	90.550	343.220	5945.67	4084.87	3414.26	-2305.00	1759809.60	14607914.78	40°13'19.722"N	80°34'20.228"W	4119.49	325.976	0.74	-0.04	-0.74	
10419.00	90.650	342.600	5944.69	4176.59	3503.15	-2332.33	1759782.28	14608003.63	40°13'20.602"N	80°34'20.575"W	4208.54	326.345	0.68	0.11	-0.67	
10512.00	90.650	341.570	5943.64	4268.52	3591.64	-2360.94	1759753.69	14608092.08	40°13'21.477"N	80°34'20.938"W	4298.12	326.681	1.11	0.00	-1.11	
10604.00	90.620	340.620	5942.62	4359.69	3678.67	-2390.74	1759723.89	14608179.08	40°13'22.339"N	80°34'21.317"W	4387.28	326.980	1.03	-0.03	-1.03	
10697.00	90.580	340.140	5941.65	4451.99	3766.26	-2421.97	1759692.68	14608266.64	40°13'23.206"N	80°34'21.714"W	4477.80	327.256	0.52	-0.04	-0.52	
10790.00	90.400	338.040	5940.85	4544.53	3853.13	-2455.16	1759659.50	14608353.47	40°13'24.066"N	80°34'22.137"W	4568.85	327.495	2.27	-0.19	-2.26	
10883.00	90.460	336.670	5940.15	4637.30	3938.95	-2490.96	1759623.71	14608439.27	40°13'24.916"N	80°34'22.593"W	4660.50	327.691	1.47	0.06	-1.47	
10975.00	90.310	336.180	5939.53	4729.17	4023.27	-2527.76	1759586.93	14608523.55	40°13'25.751"N	80°34'23.062"W	4751.45	327.860	0.56	-0.16	-0.53	
11068.00	90.340	336.210	5939.01	4822.06	4108.36	-2565.29	1759549.41	14608608.61	40°13'26.593"N	80°34'23.541"W	4843.49	328.019	0.05	0.03	0.03	
11161.00	90.250	337.560	5938.53	4914.89	4193.89	-2601.80	1759512.92	14608694.11	40°13'27.440"N	80°34'24.006"W	4935.39	328.185	1.45	-0.10	1.45	
11254.00	90.250	338.320	5938.12	5007.60	4280.08	-2636.73	1759478.00	14608780.26	40°13'28.294"N	80°34'24.451"W	5027.07	328.365	0.82	0.00	0.82	
11347.00	90.310	338.950	5937.67	5100.21	4366.69	-2670.61	1759444.13	14608866.84	40°13'29.151"N	80°34'24.883"W	5118.61	328.551	0.68	0.06	0.68	
11439.00	90.250	339.510	5937.22	5191.73	4452.71	-2703.23	1759411.52	14608952.82	40°13'30.003"N	80°34'25.298"W	5209.04	328.738	0.61	-0.07	0.61	
11532.00	90.280	340.650	5936.79	5284.10	4540.14	-2734.92	1759379.85	14609040.22	40°13'30.868"N	80°34'25.701"W	5300.25	328.936	1.23	0.03	1.23	
11625.00	90.280	341.100	5936.33	5376.31	4628.01	-2765.39	1759349.39	14609128.06	40°13'31.738"N	80°34'26.088"W	5391.27	329.140	0.48	0.00	0.48	
11718.00	90.250	340.360	5935.90	5468.55	4715.80	-2796.08	1759318.71	14609215.81	40°13'32.607"N	80°34'26.478"W	5482.41	329.336	0.80	-0.03	-0.80	
11810.00	90.310	341.640	5935.45	5559.74	4802.78	-2826.03	1759288.77	14609302.76	40°13'33.468"N	80°34'26.859"W	5572.54	329.527	1.39	0.07	1.39	
11903.00	90.280	342.890	5934.98	5651.63	4891.36	-2854.36	1759260.46	14609391.30	40°13'34.345"N	80°34'27.219"W	5663.28	329.734	1.34	-0.03	1.34	
11996.00	90.310	340.760	5934.50	5743.62	4979.71	-2883.37	1759231.46	14609479.62	40°13'35.219"N	80°34'27.587"W	5754.24	329.928	2.29	0.03	-2.29	

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

WELLPATH DATA (184 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]	
12089.00	90.340	341.150	5933.97	5835.82	5067.62	-2913.71	1759201.13	14609567.50	40°13'36.089"N	80°34'27.973"W	5845.55	330.103	0.42	0.03	0.42	
12181.00	90.770	338.560	5933.08	5927.22	5153.98	-2945.39	1759169.46	14609653.82	40°13'36.944"N	80°34'28.376"W	5936.23	330.253	2.85	0.47	-2.82	
12274.00	90.830	338.650	5931.78	6019.83	5240.56	-2979.31	1759135.55	14609740.37	40°13'37.801"N	80°34'28.808"W	6028.25	330.381	0.12	0.06	0.10	
12367.00	90.590	341.660	5930.63	6112.17	5328.02	-3010.88	1759104.00	14609827.80	40°13'38.667"N	80°34'29.210"W	6119.90	330.529	3.25	-0.26	3.24	
12459.00	90.580	342.880	5929.69	6203.06	5415.65	-3038.89	1759075.99	14609915.39	40°13'39.534"N	80°34'29.566"W	6210.00	330.702	1.33	-0.01	1.33	
12552.00	90.520	340.240	5928.79	6295.11	5503.86	-3068.31	1759046.59	14610003.57	40°13'40.407"N	80°34'29.939"W	6301.35	330.861	2.84	-0.06	-2.84	
12645.00	90.520	337.310	5927.95	6387.69	5590.54	-3101.97	1759012.94	14610090.22	40°13'41.265"N	80°34'30.368"W	6393.46	330.976	3.15	0.00	-3.15	
12738.00	90.620	335.230	5927.02	6480.57	5675.67	-3139.39	1758975.53	14610175.31	40°13'42.108"N	80°34'30.845"W	6486.06	331.052	2.24	0.11	-2.24	
12830.00	90.550	333.640	5926.09	6572.54	5758.65	-3179.09	1758935.85	14610258.26	40°13'42.930"N	80°34'31.352"W	6577.89	331.099	1.73	-0.08	-1.73	
12923.00	90.550	333.490	5925.19	6665.54	5841.92	-3220.49	1758894.46	14610341.50	40°13'43.755"N	80°34'31.881"W	6670.81	331.133	0.16	0.00	-0.16	
13016.00	90.550	335.650	5924.30	6758.51	5925.90	-3260.42	1758854.55	14610425.45	40°13'44.587"N	80°34'32.390"W	6763.63	331.180	2.32	0.00	2.32	
13108.00	91.200	339.620	5922.89	6850.23	6010.96	-3295.42	1758819.57	14610510.47	40°13'45.429"N	80°34'32.836"W	6855.03	331.267	4.37	0.71	4.32	
13201.00	91.080	342.160	5921.04	6942.41	6098.81	-3325.86	1758789.14	14610598.29	40°13'46.299"N	80°34'33.223"W	6946.71	331.395	2.73	-0.13	2.73	
13294.00	91.110	342.630	5919.27	7034.26	6187.43	-3353.98	1758761.03	14610686.88	40°13'47.176"N	80°34'33.580"W	7038.01	331.540	0.51	0.03	0.51	
13387.00	90.620	343.550	5917.86	7125.92	6276.40	-3381.03	1758733.99	14610775.82	40°13'48.056"N	80°34'33.924"W	7129.13	331.689	1.12	-0.53	0.99	
13480.00	90.650	344.100	5916.83	7217.38	6365.72	-3406.93	1758708.10	14610865.09	40°13'48.940"N	80°34'34.252"W	7220.08	331.844	0.59	0.03	0.59	
13572.00	90.550	343.190	5915.87	7307.91	6453.99	-3432.84	1758682.20	14610953.33	40°13'49.814"N	80°34'34.581"W	7310.15	331.992	1.00	-0.11	-0.99	
13665.00	90.620	339.440	5914.92	7400.01	6542.06	-3462.62	1758652.43	14611041.38	40°13'50.685"N	80°34'34.959"W	7401.92	332.108	4.03	0.08	-4.03	
13758.00	90.680	338.890	5913.86	7492.53	6628.98	-3495.70	1758619.36	14611128.25	40°13'51.546"N	80°34'35.380"W	7494.21	332.196	0.59	0.06	-0.59	
13850.00	90.650	339.410	5912.80	7584.06	6714.95	-3528.44	1758586.63	14611214.19	40°13'52.397"N	80°34'35.797"W	7585.54	332.280	0.57	-0.03	0.57	
13943.00	90.650	340.590	5911.74	7676.44	6802.33	-3560.25	1758554.84	14611301.54	40°13'53.262"N	80°34'36.202"W	7677.70	332.373	1.27	0.00	1.27	
14035.00	90.650	341.140	5910.70	7767.66	6889.24	-3590.40	1758524.70	14611388.42	40°13'54.122"N	80°34'36.585"W	7768.70	332.473	0.60	0.00	0.60	
14128.00	90.680	341.680	5909.62	7859.75	6977.38	-3620.05	1758495.06	14611476.53	40°13'54.994"N	80°34'36.962"W	7860.57	332.579	0.58	0.03	0.58	
14221.00	90.650	341.880	5908.54	7951.75	7065.71	-3649.12	1758466.00	14611564.82	40°13'55.869"N	80°34'37.332"W	7952.38	332.686	0.22	-0.03	0.22	
14313.00	90.680	342.160	5907.47	8042.71	7153.22	-3677.52	1758437.61	14611652.29	40°13'56.735"N	80°34'37.692"W	8043.17	332.792	0.31	0.03	0.30	
14406.00	90.800	342.200	5906.27	8134.61	7241.75	-3705.98	1758409.16	14611740.79	40°13'57.611"N	80°34'38.054"W	8134.93	332.899	0.14	0.13	0.04	
14498.00	90.650	341.210	5905.11	8225.64	7329.09	-3734.86	1758380.30	14611828.10	40°13'58.475"N	80°34'38.421"W	8225.85	332.997	1.09	-0.16	-1.08	
14591.00	90.650	340.350	5904.05	8317.87	7416.90	-3765.47	1758349.70	14611915.87	40°13'59.345"N	80°34'38.810"W	8318.00	333.084	0.92	0.00	-0.92	
14684.00	90.620	339.940	5903.02	8410.22	7504.36	-3797.05	1758318.12	14612003.30	40°14'00.210"N	80°34'39.212"W	8410.30	333.162	0.44	-0.03	-0.44	
14776.00	90.680	340.170	5901.98	8501.59	7590.84	-3828.43	1758286.76	14612089.75	40°14'01.066"N	80°34'39.611"W	8501.63	333.236	0.26	0.07	0.25	

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

WELLPATH DATA (184 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]
14869.00	90.680	339.770	5900.87	8593.98	7678.21	-3860.29	1758254.92	14612177.08	40°14'01.931"N	80°34'40.017"W	8593.99	333.309	0.43	0.00	-0.43
14962.00	90.740	339.400	5899.72	8686.43	7765.36	-3892.72	1758222.49	14612264.20	40°14'02.794"N	80°34'40.429"W	8686.43	333.376	0.40	0.06	-0.40
15053.00	90.710	341.350	5898.57	8776.75	7851.06	-3923.28	1758191.94	14612349.87	40°14'03.642"N	80°34'40.818"W	8776.75	333.448	2.14	-0.03	2.14
15078.00	90.710	341.350	5898.26	8801.51	7874.75	-3931.28	1758183.95	14612373.55	40°14'03.877"N	80°34'40.920"W	8801.51	333.470	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Thomas Parkinson BRK 201H AWB Ref Wellpath: Thomas Parkinson BRK 201H AWP Proj: 15078*MD									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
20in Conductor	26.00	126.00	100.00	26.00	126.00	0.00	0.00	0.07	0.33
17.5in Open Hole	126.00	511.00	385.00	126.00	510.99	0.07	0.33	0.62	2.36
13.375in Casing	26.00	491.00	465.00	26.00	490.99	0.00	0.00	0.63	2.26
12.25in Open Hole	511.00	1758.00	1247.00	510.99	1743.91	0.62	2.36	-159.28	-21.93
9.625in Casing	26.00	1738.00	1712.00	26.00	1724.22	0.00	0.00	-155.81	-22.24
8.75in Open Hole	1758.00	5413.00	3655.00	1743.91	5296.45	-159.28	-21.93	-678.20	-652.41
8.5in Open Hole	5413.00	15078.00	9665.00	5296.45	5898.26	-678.20	-652.41	7874.75	-3931.28

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Thomas Parkinson BRK 201H BHL Rev-2	5893.00	7883.51	-3945.68	1758169.55	14612382.31	40°14'03.964"N	80°34'41.105"W	point
Thomas Parkinson BRK 201H LP Rev-2	5996.00	-201.44	-1005.03	1761109.08	14604300.47	40°12'43.930"N	80°34'03.697"W	point

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

WELLPATH COMPOSITION - Ref Wellbore: Thomas Parkinson BRK 201H AWB		Ref Wellpath: Thomas Parkinson BRK 201H AWP Proj: 15078'MD	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment
26.00	500.05	SDI Keeper v1.04	03_SDI Gyro Keeper <17-1/2"> (99.91'-500.05')
500.05	755.80	SDI Keeper v1.04	04_SDI Gyro Keeper <12-1/4"> (500.05')(549.98'-755.8')
755.80	1685.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	07_APS EM+SurCon MSA <12-1/4"> (755.8')(848'-1685')
1685.00	5334.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	08_APS EM+SurCon MSA <8-3/4"> (1685')(1767'-5334')
5334.00	15053.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	09_BH AT Curve+SurCon MSA <8-1/2"> (5334')(5412'-15053')
15053.00	15078.00	Blind Drilling (std)	Projection to bit

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

COMMENTS
<p>Wellpath general comments API: 47-009-00235-0000 BH Job #: 9067027 Rig: SDC 46 Duration: 03/24/2018 - 04/04/2018</p>

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/13/2018
Job End Date:	5/28/2018
State:	West Virginia
County:	Brooke
API Number:	47-009-00235-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Thomas Parkinson BRK 201H
Latitude:	40.21274228
Longitude:	-80.56409176
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	5,948
Total Base Water Volume (gal):	10,363,872
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Southwestern Energy	Carrier/Base Fluid	Water	7732-18-5	100.00000	82.38715	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	16.57326	
HCL Acid (12.6%-17.5%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.40000	0.76003	
			Hydrogen Chloride	7647-01-0	17.50000	0.17670	
WFRA-2000	U.S. Well Services, LLC	Friction Reducer	Water	7732-18-5	60.00000	0.04134	
			2-Propenoic acid, polymer with 2 propenamide	9003-06-9	30.00000	0.02067	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01695	
BIOC11219A	Nalco Champion	Anti-Bacterial Agent	Methanol	64-17-5	60.00000	0.00869	
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00552	
			Glutaraldehyde	111-30-8	10.00000	0.00184	

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ParaSolv 300	J.S. Well Services, LLC	Other					
			Citrus Terpenes and Terpene Extractives	Proprietary	90.00000	0.00341	
SCAL16486A	Nalco Champion	Scale Inhibitor					
			Ethylene Glycol	107-21-1	30.00000	0.00158	
			Amine Triphosphate	Proprietary	30.00000	0.00142	
AI-303	J.S. Well Services, LLC	Acid Corrosion Inhibitors					
			Ethylene glycol	107-21-1	40.00000	0.00038	
			Cinnamaldehyde	104-55-2	20.00000	0.00014	
			Formic acid	64-18-6	20.00000	0.00013	
			Butyl cellosolve	111-76-2	20.00000	0.00012	
			Polyether	60828-78-6	10.00000	0.00007	
			Acetophenone, thiourea, formaldehyde polymer	68527-49-1	5.00000	0.00003	
LT FLUSH SYSTEM I	J.S. Well Services, LLC	Other					
			Mineral oil, petroleum distillates, hydro-treated light naphthenic	64742-53-6	100.00000	0.00056	

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

- * Total Water Volume sources may include fresh water, produced water, and/or recycled water
- ** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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**MIKE RYNIAWEC BRK 201H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	5/4/2018	14,993	14,895	36
2	5/13/2018	14,860	14,753	42
3	5/14/2018	14,720	14,613	42
4	5/14/2018	14,580	14,473	42
5	5/14/2018	14,437	14,333	42
6	5/15/2018	14,300	14,193	42
7	5/16/2018	14,160	14,048	42
8	5/17/2018	14,020	13,913	42
9	5/17/2018	13,880	13,773	42
10	5/17/2018	13,740	13,633	42
11	5/18/2018	13,600	13,493	42
12	5/18/2018	13,460	13,353	42
13	5/19/2018	13,315	13,213	42
14	5/19/2018	13,180	13,078	42
15	5/19/2018	13,040	12,933	42
16	5/20/2018	12,900	12,793	42
17	5/20/2018	12,760	12,653	42
18	5/20/2018	12,620	12,513	42
19	5/21/2018	12,480	12,373	42
20	5/21/2018	12,340	12,233	42
21	5/21/2018	12,200	12,093	42
22	5/22/2018	12,060	11,953	42
23	5/23/2018	11,920	11,813	42
24	5/23/2018	11,780	11,673	42
25	5/23/2018	11,640	11,533	42
26	5/24/2018	11,500	11,393	42
27	5/25/2018	11,360	11,253	42
28	5/25/2018	11,220	11,113	42
29	5/25/2018	11,080	10,973	42
30	5/26/2018	10,940	10,833	42
31	5/26/2018	10,800	10,693	42
32	5/26/2018	10,660	10,553	42
33	5/27/2018	10,520	10,413	42
34	5/27/2018	10,380	10,273	42
35	5/28/2018	10,240	10,133	42
36	5/28/2018	10,100	9,993	42
37	5/29/2018	9,960	9,853	42
38	5/29/2018	9,820	9,713	42
39	5/29/2018	9,680	9,573	42
40	5/29/2018	9,540	9,433	42
41	5/29/2018	9,400	9,293	42
42	5/30/2018	9,260	9,153	42
43	5/30/2018	9,120	9,008	42

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MIKE RYNIAWEC BRK 201H
ATTACHMENT 1
PERF REPORT

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
44	5/30/2018	8,980	8,873	42
45	5/31/2018	8,840	8,733	42
46	5/31/2018	8,700	8,593	42
47	5/31/2018	8,560	8,453	42
48	5/31/2018	8,420	8,313	42
49	5/31/2018	8,280	8,173	42
50	6/1/2018	8,140	8,033	42
51	6/1/2018	8,000	7,893	42
52	6/1/2018	7,860	7,753	42
53	6/1/2018	7,720	7,613	42
54	6/1/2018	7,580	7,473	42
55	6/2/2018	7,440	7,333	42
56	6/2/2018	7,300	7,193	42
57	6/2/2018	7,163	7,053	42
58	6/2/2018	7,020	6,913	42
59	6/2/2018	6,880	6,773	42
60	6/2/2018	6,740	6,633	42
61	6/2/2018	6,600	6,495	42
62	6/3/2018	6,460	6,353	42

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WV Department of
Environmental Protection

THOMAS PARKINSON BRK 201H

ATTACHMENT 2

STIM REPORT

STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatment	Max Breakdown	ISIP (PSI)	Amount of Proppant (lbs)	Amount of water bbls	Amount of nitrogen/othe
1	5/13/2018	86	7,545	8,488	3,868	280,180	4,753	0
2	5/14/2018	90	7,473	6,952	4,062	279,920	5,449	0
3	5/14/2018	89	7,635	5,836	4,665	280,580	4,755	0
4	5/14/2018	89	7,430	5,819	4,584	281,360	4,923	0
5	5/15/2018	90	7,516	6,964	4,474	281,050	5,162	0
6	5/16/2018	90	7,413	5,410	4,270	282,540	4,795	0
7	5/17/2018	90	7,213	5,715	4,540	278,820	4,644	0
8	5/17/2018	90	7,172	5,464	4,658	279,620	5,029	0
9	5/17/2018	90	7,164	7,852	4,673	280,220	4,602	0
10	5/18/2018	88	7,251	5,271	4,423	279,520	4,595	0
11	5/18/2018	88	7,682	6,216	4,321	280,370	4,855	0
12	5/18/2018	87	7,520	5,431	4,574	281,000	4,509	0
13	5/19/2018	90	7,114	5,302	4,417	280,260	4,204	0
14	5/19/2018	89	6,830	5,863	4,522	280,470	4,517	0
15	5/19/2018	89	7,235	7,239	4,302	280,220	4,781	0
16	5/20/2018	87	7,162	5,584	4,308	282,080	4,094	0
17	5/20/2018	89	7,041	5,992	4,678	279,610	5,075	0
18	5/20/2018	88	7,071	5,534	4,437	282,240	4,382	0
19	5/21/2018	87	7,110	6,098	4,269	280,620	4,027	0
20	5/21/2018	89	7,294	6,171	4,170	280,380	5,178	0
21	5/22/2018	87	7,070	6,032	4,293	280,800	3,946	0
22	5/22/2018	88	7,340	6,237	4,387	280,560	4,469	0
23	5/23/2018	88	6,894	6,004	4,301	280,090	4,278	0
24	5/23/2018	90	6,877	5,195	4,552	280,030	5,322	0
25	5/23/2018	88	6,968	5,879	4,606	279,780	4,321	0
26	5/24/2018	88	7,024	5,235	4,400	280,150	3,915	0
27	5/25/2018	87	7,024	5,588	4,534	280,370	3,927	0
28	5/25/2018	87	7,166	5,757	4,647	280,250	4,019	0
29	5/26/2018	87	7,015	5,156	5,025	280,280	4,124	0
30	5/26/2018	83.7	6,941	6,008	4,787	280,590	3,807	0
31	5/26/2018	85.4	7,287	6,023	4,427	280,330	3,858	0
32	5/27/2018	86.9	7,199	5,006	4,736	280,540	3,782	0
33	5/27/2018	86.4	7,117	6,123	4,494	281,974	3,639	0
34	5/27/2018	87	7,024	5,854	4,833	280,690	3,947	0
35	5/28/2018	85.9	7,032	5,926	4,598	279,220	3,652	0
36	5/28/2018	87.4	7,177	5,442	4,799	280,830	3,656	0
37	5/29/2018	87.4	7,361	5,633	4,597	281,450	3,666	0
38	5/29/2018	87.6	6,693	5,877	4,483	280,050	3,599	0
39	5/29/2018	87.9	6,934	5,931	4,467	280,570	3,579	0
40	5/29/2018	87.4	6,931	5,510	4,699	280,490	3,624	0
41	5/29/2018	87.7	6,849	5,596	5,031	280,520	3,639	0
42	5/30/2018	89.6	6,740	5,983	4,640	280,500	3,520	0
43	5/30/2018	87.6	6,797	5,540	4,599	280,250	3,535	0
44	5/31/2018	89.7	6,993	5,706	4,852	281,460	3,591	0
45	5/31/2018	88.5	6,972	5,516	4,559	280,420	3,618	0
46	5/31/2018	89	7,126	5,938	4,648	280,680	3,503	0
47	5/31/2018	90.2	6,574	5,564	4,830	280,500	3,852	0
48	6/1/2018	89.7	6,882	5,471	4,754	281,640	3,498	0
49	6/1/2018	89.6	6,658	6,300	4,700	280,470	3,473	0
50	6/1/2018	91	6,709	5,842	4,789	281,110	3,416	0
51	6/1/2018	89.4	6,087	4,552	4,637	280,870	3,330	0
52	6/1/2018	90	7,518	5,615	4,602	280,850	3,709	0
53	6/1/2018	78.9	8,236	5,664	4,858	279,480	3,434	0

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WV Department of Environmental Protection

THOMAS PARKINSON BRK 201H
 ATTACHMENT 2
 STIM REPORT

STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatment	Max Breakdown	ISIP (PSI)	Amount of Proppant (lbs)	Amount of water bbls	Amount of nitrogen/othe
54	6/1/2018	90.8	5,977	5,469	4,840	280,300	3,434	0
55	6/2/2018	91.3	6,078	5,999	4,971	280,300	3,422	0
56	6/2/2018	91.4	6,121	5,641	4,781	282,280	3,243	0
57	6/2/2018	90.8	5,967	4,025	4,699	279,600	3,197	0
58	6/2/2018	90.9	6,307	5,846	4,540	281,200	3,181	0
59	6/2/2018	90.8	6,616	5,313	4,697	280,780	3,378	0
60	6/2/2018	90.1	6,281	5,847	4,952	281,480	3,360	0
61	6/3/2018	88.2	7,051	6,169	4,653	281,350	3,387	0
62	6/3/2018	85	6,593	6,131	4,507	271,300	3,187	0

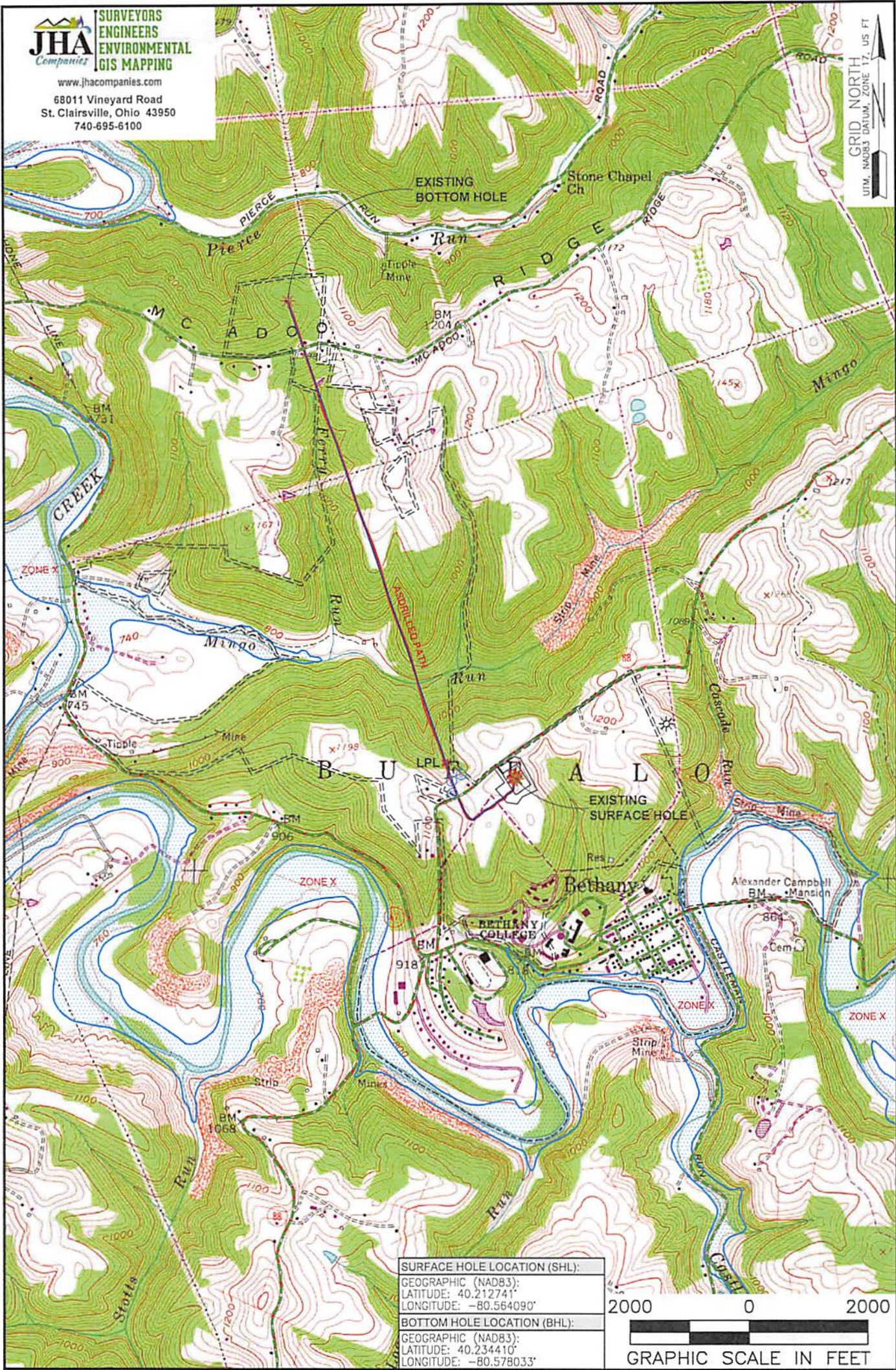
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 Environmental Protection



Well Name: Thomas Parkinson BRK 201H 47009002350000

LITHOLOGY/FORMATION	TOP DEPTH, MD (FT)	TOP DEPTH, TVD (FT)	BOTTOM DEPTH, MD (FT)	BOTTOM DEPTH, TVD (FT)	QUANTITY AND TYPE OF FLUID
Base of Fresh Water	0.00	0.00	401.00	401.00	
Top of Salt Water	813.00	813.00	NA	NA	
Pittsburgh Coal	339.00	339.00	347.00	347.00	
Maxton (ss)	1170.00	1170.00	1536.00	1536.00	
Big Injun (ss)	1536.00	1536.00	2009.00	2009.00	
Berea (siltstone)	2009.00	2009.00	5563.00	5530.00	
Rhinestreet (shale)	5652.00	5527.00	5809.00	5671.00	
Cashaqua (shale)	5809.00	5671.00	5873.00	5727.00	
Middlesex (shale)	5873.00	5727.00	5958.00	5795.00	
Burket (shale)	5958.00	5795.00	5976.00	5809.00	
Tully (ls)	5976.00	5809.00	6054.00	5863.00	
Mahantango (shale)	6054.00	5863.00	6338.00	5983.00	
Marcellus (shale)	6338.00	5983.00	NA	NA	GAS

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NOTES ON SURVEY

1. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
2. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

LEGEND:

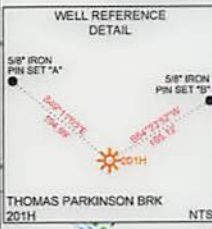
- PROPOSED SURFACE HOLE / BOTTOM HOLE
- ☼ EXISTING / PRODUCING WELLHEAD
- LPL ✕ LANDING POINT LOCATION
- 🌊 FLOOD PLAIN
- NATURAL WATERWAY
- ACCESS ROAD
- PUBLIC ROAD
- LEASE BOUNDARY
- PROPOSED PATH
- ASDRILLED PATH

WELL OPERATOR:
SWN PRODUCTION COMPANY, LLC
ADDRESS:
P.O. BOX 1300 JANE LEW, WV 26378
SURFACE OWNER:
BETHANY COLLEGE

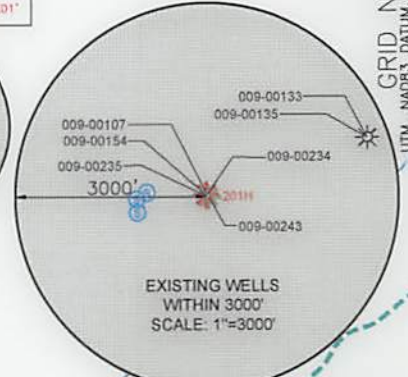
WELL (FARM) NAME: THOMAS PARKINSON BRK		WELL # 201H	SERIAL # XXXX
COUNTY: BROOKE	CODE: 009	DISTRICT: BUFFALO	
USGS 7 1/2 QUADRANGLE MAP NAME: BETHANY, WV			

LATITUDE: 40°15'00" SURFACE HOLE 6265'

JHA SURVEYORS
ENGINEERS
ENVIRONMENTAL
GIS MAPPING
www.jhacompanies.com
68011 Vineyard Road
St. Clairsville, Ohio 43950
740-695-6100



LINE	BEARING	DISTANCE
L1	S75°04'47"E	956.01'
L2	S28°42'56"W	1818.01'



SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4451461.07 EASTING: 537093.33
LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4451399.69 EASTING: 536787.13
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4453863.04 EASTING: 535891.14

- NOTES ON SURVEY**
- COORDINATE SYSTEM IS UTM NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
 - SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
 - THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
 - NO DWELLINGS OR BUILDINGS WITHIN 825 FEET OF PROPOSED CENTER OF PAD.
 - NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
 - NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF THE LIMITS OF DISTURBANCE.
 - NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
 - THIS AS-DRILLED PLAT IS PREPARED FROM THE FINAL WELL PLAT PREPARED BY ANOTHER CONSULTANT AND THE DRILLING INFORMATION IS PROVIDED TO JHA.

SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4451460.93 EASTING: 537093.48
LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4451531.13 EASTING: 536736.53
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4453860.37 EASTING: 535895.54

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



COMPANY: **SWN** Production Company, LLC

<p>WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)	THOMAS PARKINSON BRK OPERATOR'S WELL #: 201H API WELL #: 47 009 00235 STATE COUNTY PERMIT
---	--	--

WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP GAS LIQUID INJECTION STORAGE SHALLOW

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1,160.5'

DISTRICT: BUFFALO COUNTY: BROOKE QUADRANGLE: BETHANY, WV

SURFACE OWNER: BETHANY COLLEGE ACREAGE: ±822.26

OIL & GAS ROYALTY OWNER: BETHANY COLLEGE, A CORPORATION, F/A THE TRUSTEES OF BETHANY COLLEGE, F/A THE TRUSTEES OF BETHANY COLLEGE, A CORPORATION ACREAGE: ±822.26

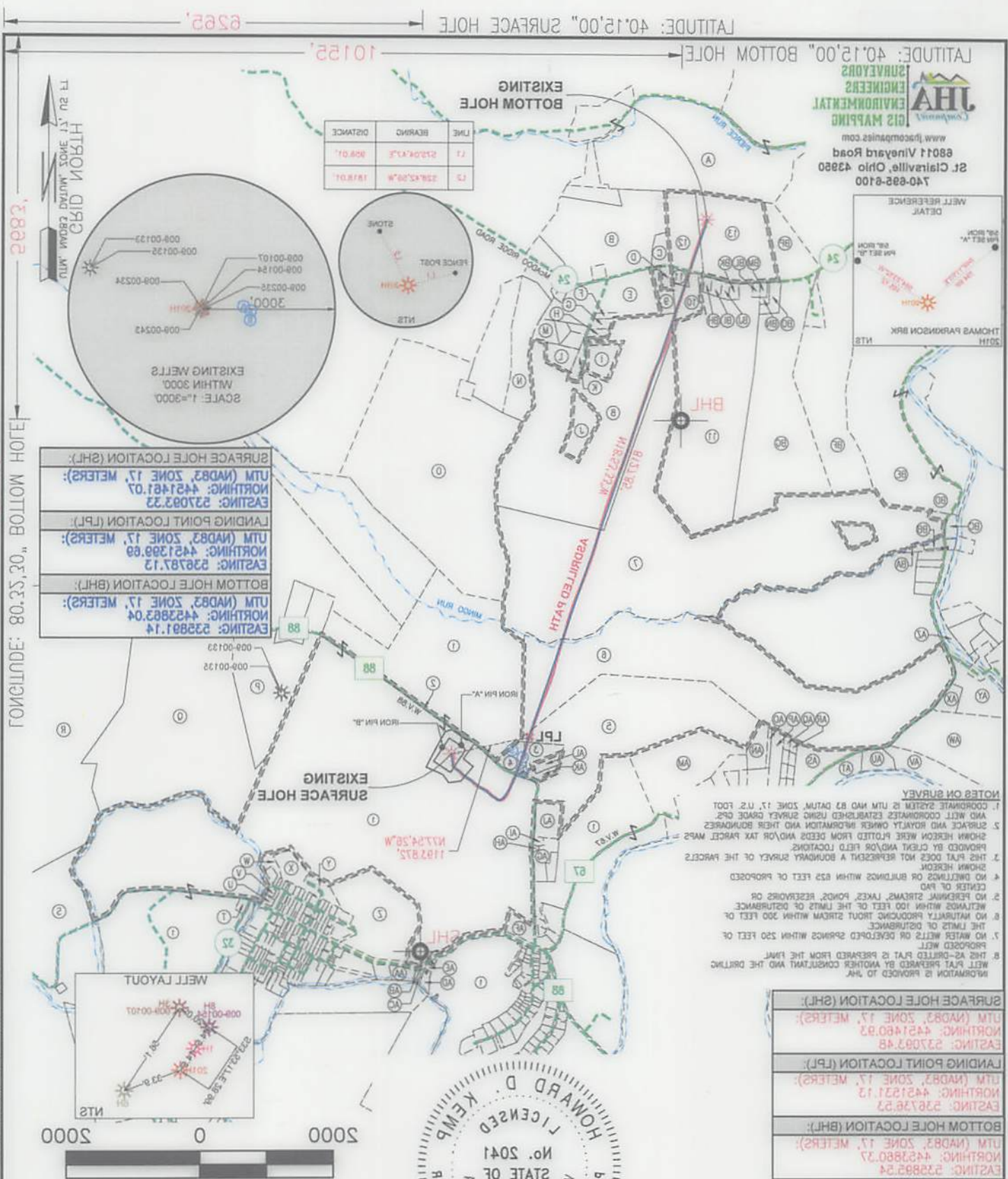
DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) AS-DRILLED

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,000' TVD 15,078.0' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378	DESIGNATED AGENT: BRITTANY WOODY ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378
--	--

LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE * EXISTING / PRODUCING WELLHEAD LPL * LANDING POINT LOCATION ● EXISTING WATER WELL ● EXISTING SPRING --- PUBLIC ROAD --- NATURAL WATERWAY --- SURVEYED BOUNDARY = = = LEASE BOUNDARY --- ASDRILLED PATH --- PROPOSED PATH	REVISIONS: DATE: 09-28-2018 DRAWN BY: D. REED SCALE: 1" = 2000' DRAWING NO: 2018-675 WELL LOCATION PLAT
---	---



PROFESSIONAL SURVEYOR
 STATE OF WEST VIRGINIA
 No. 2041
 LICENSED
 HOWARD D. KEMP

DATE: 09-28-2018
 DRAWN BY: D. REED
 SCALE: 1" = 2000'
 DRAWING NO: 2018-673
 WELL LOCATION PLAN
 P.D. ID 3001162825
 COMPLETION ID 2501162845

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC
 ADDRESS: P.O. BOX 1300
 CITY: JANE LEW STATE: WV ZIP CODE: 26378

DESIGNATED AGENT: BRITANNY WOODY
 ADDRESS: P.O. BOX 1300
 CITY: JANE LEW STATE: WV ZIP CODE: 26378

ESTIMATED DEPTH: 6,000' TVD 15,078.0' TMD
 TARGET FORMATION: MARCELLUS
 CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY AS-DRIILLED)
 DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

OIL & GAS ROYALTY OWNER: BETHANY COLLEGE A CORPORATION (VIA THE TRUSTEE OF BETHANY COLLEGE, VIA THE TRUSTEE OF BETHANY COLLEGE, A CORPORATION)
 SURFACE OWNER: BETHANY COLLEGE
 DISTRICT: BUFFALO COUNTY: BROOKE WATERSHED: UPPER OHIO SOUTH
 WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP GAS LIQUID INJECTION STORAGE SHALLOW

CHARLESTON, WV 25034
 OFFICE OF OIL & GAS
 801 57TH STREET
 WDEP
 UNITED STATES TOPOGRAPHIC MAPS
 (+) DENOTES LOCATION OF WELL ON
 ELEVATION: (NAD 88, US FT)
 SOURCE OF GRADE GPS
 PROVEN SURVEY
 ACCURACY: 1/500
 DEGREE OF
 MINIMUM

OPERATOR'S WELL #: 47
 STATE: WV COUNTY: PERMIT: 009 00535
 THOMAS PARKINSON BRK 201H

COMPANY: SWN Production Company, LLC
 SWN
 COMPANY: SWN Production Company, LLC

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	BETHANY COLLEGE (S) / BETHANY COLLEGE, A CORPORATION, F/K/A THE TRUSTEES OF BETHANY COLLEGE, F/K/A THE TRUSTEES OF BETHANY COLLEGE, A CORPORATION (R)	03-B38-0031.0000
TRACT	SURFACE OWNER	TAX PARCEL
2	WV DOT, DIVISION OF HIGHWAYS	BEALL'S RIDGE RD
3	DAVID OWENS & LINDA WALTERS	03-B38-0033.0000
4	DAVID OWENS & LINDA WALTERS	03-B38-0032.0000
5	ALLEN JOHNSON, WARREN JOHNSON, DEBORAH CRAIG, CHARLES JOHNSON & VICTORIA LYNN OWENS	03-B38-0036.0000
6	MELVIN PELUCHETTE	03-B37-0063.0000
7	STARVAGGI INDUSTRIES, INC	03-B37-0053.0000
8	JOHN H., JR. & STEPHANIE PROELLOCHS; KEVIN & JODIE RAY	03-B38-0007.0000
9	TYLER BROWN	03-B33-0067.0000
10	TODD & SHARON JACKSON	03-B33-0065.0000
11	MARY JANE JACKSON	03-B33-0060.0000
12	GREG & REGINA ZOLMAN	03-B33-0069.0000
13	SYLVIA ELIZABETH BARR & BETTY J. WEIDNER	03-B33-0056.0000

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	STARVAGGI INDUSTRIES, INC.	03-B33-0054.0000
B	DEBRA KAY PELAEZ	03-B33-0071.0000
C	LAWRENCE PAUL SMITH, SR. & PATRICIA SHERON	03-B33-0070.0000
D	TYLER N. BROWN	03-B33-0066.0000
E	RICHARD PACHED	03-B33-0068.0001
F	SCOTT A., II & LINDSEY LAW	03-B38-0058.0000
G	SCOTT A., II & LINDSEY LAW	03-B38-0003.0000
H	NORMAN K. BOWMAN	03-B38-0004.0000
I	KEVIN & JODY RAY	03-B38-0006.0000
J	JOHN H. PROELLOCHS, JR.	03-B38-0007.0001
K	JOHN H., SR. & NANCY J. PROELLOCHS	03-B38-0007.0002
L	ALAN L. & BETH B. KLEIN	03-B38-0008.0000
M	N/A	03-B38-0008.0001
N	JOHN H., JR. & STEPHANIE PROELLOCHS; KEVIN & JODY RAY	03-B38-0012.0000
O	MARK A. & GEORGIA M. FEDAK	03-B38-0014.0000
P	KIMBERLY CARMAN WORTHLEY	03-B38-0027.0000
Q	KIMBERLY CARMAN WORTHLEY	03-B38-0025.0000
R	MARK W. OWEN & VIRGINIA BEALL KRUEZ	03-B38-0024.0000
S	GENE CHARLES VALENTINE TRUST	03-B43-0028.0000
T	RICHARD FRANCIS GORBY	03-B43-0027.0000
U	JAMES & KATHLEEN KEEGAN	02-B43C-0037.0000
V	BARBARA L. CHAMBERS	02-B43C-0036.0000
W	BETHANY COLLEGE	02-B43C-0003.0000
X	BETHANY COLLEGE	02-B43C-0002.0000
Y	BETHANY COLLEGE	02-B43C-0001.0000
Z	BETHANY COLLEGE	01-B43B-0026.0000
AA	TRAVIS G. & GREGORY B. STRAUB	02-B43F-0084.0000
AB	GEORGE SONNEWALD, JR.	02-B43F-0082.0000
AC	GEORGE SONNEWALD, JR.	02-B43F-0081.0000
AD	WILLIAM MITCHELL HEIRS	02-B43B-0022.0000
AE	MITCHELL DONALD STEVEN	02-B43F-0083.0000
AF	JOHN HUFF HEIRS	02-B43B-0004.0000
AG	DANNY M. & SANDRA L. HOLLADAY	03-B43-0003.0000
AH	DENNIS & DERRELLE RUSCHELL	03-B43-0002.0000
AI	DENNIS & DERRELLE RUSCHELL	03-B43-0001.0000
AJ	RUTH GERMON, JEFFREY WOY, SUE MOORE, PATRICIA WEST & SARA WOY	03-B38-0037.0000
AK	DAVID G. OWENS & LINDA WALTERS	03-B38-0035.0000
AL	DAVID G. OWENS & LINDA WALTERS	03-B38-0034.0000
AM	TERRY P. & KAREN THOMPSON	03-B38-0038.0000
AN	MARK T. NICHOLSON	03-B38-0045.0000
AO	MARK T. NICHOLSON	03-B38-0046.0000
AP	HARRY J. LOWE	03-B38-0047.0000
AQ	LESLIE & GAYLENE ELSON	03-B38-0051.0000
AR	LESLIE & GAYLENE ELSON	03-B38-0052.0000
AS	SHAWN C. ARACICH	03-B37-0064.0000
AT	ELLEN B. SANFORD	03-B38-0056.0000
AU	JOHN B. DAUGHERTY	03-B37-0065.0000
AV	ELLEN B. SANFORD	03-B37-0076.0000
AW	LPS INVESTMENT PARTNERSHIP	03-B37-0066.0000
AX	LOTHIE KEITH	03-B37-0067.0000
AY	THEODORE W. BUNNELL	03-B37-0068.0000
AZ	JOHN E. & SHERRILL J. RIPLEY	03-B37-0062.0000
BA	MARLIN G., SR. & JOY CRAWFORD	03-B37-0055.0000
BB	LAWRENCE PAUL SMITH, SR.	03-B37-0054.0000
BC	WILLIAM E. & HAZEL E. JOHNSTON	03-B37-0053.0001
BD	CLEO KLAGES	03-B37-0052.0000
BE	RICHARD ROGERS, CHERI SHARP, EDWARD O'DYER & ET AL	03-B37-0048.0000
BF	MARSH LIVING TRUST	03-B32-0118.0000
BG	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	03-B38-0001.0000
BH	RICHARD L. & JONI TENNANT	03-B33-0064.0000
BI	MATTHEW P. TOMSHACK	03-B33-0063.0000
BJ	MATTHEW P. TOMSHACK	03-B33-0062.0000
BK	MARY JANE JACKSON	03-B33-0061.0000
BL	STEPHEN L. & RETTA J. STEIN	03-B33-0059.0000
BM	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	03-B33-0058.0000
BN	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	03-B38-0002.0000
BO	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	03-B33-0057.0000
BP	BRIAN BIRDSALL	03-B32-0120.0000

REVISIONS:

COMPANY:

SWN
Production Company, LLC

SWN $\frac{R^2}{A} \rightarrow V^{+0}$
Production Company™

OPERATOR'S THOMAS PARKINSON BRK

DATE: 09-28-2018

WELL #: 201H

DRAWN BY: D. REED

DISTRICT:
BUFFALO

COUNTY:
BROOKE

STATE:
WV

SCALE: N/A
DRAWING NO: 2018-675
WELL LOCATION PLAT

COMPLETION ID 2501162645
PAD ID 3001156582

TRACT	SURFACE OWNER (S) \ ROYALTY OWNER (R)	TAX PARCEL
12	SYLVIA ELIZABETH BARR & BETTY J. WEIDNER	02-873-0088.0000
13	GREC & REGINA ZOLMAN	02-873-0089.0000
11	MARY JANE JACKSON	02-873-0080.0000
10	TODD & SHARON JACKSON	02-873-0082.0000
9	TYLER BROWN	02-873-0087.0000
8	JOHN H. JR. & STEPHANIE PROELTCH; KEVIN & JODIE RAY	02-873-0007.0000
7	STARVACGI INDUSTRIES, INC	02-873-0023.0000
6	MELVIN PELUCHETTE	02-873-0083.0000
5	VICTORIA LYNN OWENS	02-873-0028.0000
4	ALLEN JOHNSON, WARREN JOHNSON, DEBORAH DRAID, CHARLES JOHNSON & DAVID OWENS & LINDA WALTERS	02-873-0025.0000
3	DAVID OWENS & LINDA WALTERS	02-873-0023.0000
2	WV DOT, DIVISION OF HIGHWAYS	BEALL'S RIDGE RD
1	BETHANY COLLEGE (S) \ BETHANY COLLEGE, A CORPORATION, (R) \ THE TRUSTEES OF BETHANY COLLEGE, (R) \ A CORPORATION (R)	02-873-0021.0000

TRACT	SURFACE OWNER	TAX PARCEL
99	BRIAN BROSALT	02-873-0120.0000
98	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	02-873-0027.0000
97	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	02-873-0002.0000
96	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	02-873-0028.0000
95	STEPHEN L. & RETTA J. STEIN	02-873-0029.0000
94	MARY JANE JACKSON	02-873-0081.0000
93	MATTHEW P. TOMSHACK	02-873-0083.0000
92	MATTHEW P. TOMSHACK	02-873-0083.0000
91	MATTHEW P. TOMSHACK	02-873-0083.0000
90	RICHARD L. & JONI TENNANT	02-873-0084.0000
89	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	02-873-0001.0000
88	MARSH LIVING TRUST	02-873-0118.0000
87	RICHARD RODERS, CHERI SHARP, EDWARD O'YER & ET AL	02-873-0048.0000
86	CLEO KLADZ	02-873-0025.0000
85	WILLIAM E. & HAZEL E. JOHNSTON	02-873-0023.0001
84	LAWRENCE PAUL SMITH, SR.	02-873-0024.0000
83	MARLIN G. SR. & JOY CRAWFORD	02-873-0022.0000
82	JOHN E. & SHERILL J. RIPLEY	02-873-0082.0000
81	THEODORE W. BUNNELL	02-873-0088.0000
80	LOTHIE KETHN	02-873-0087.0000
79	LPS INVESTMENT PARTNERSHIP	02-873-0088.0000
78	ELLEN B. SAFFORD	02-873-0078.0000
77	JOHN B. DAUGHERTY	02-873-0082.0000
76	ELLEN B. SAFFORD	02-873-0082.0000
75	SHAWN C. ARACICH	02-873-0084.0000
74	LESLIE & GAYLENE ELSON	02-873-0022.0000
73	LESLIE & GAYLENE ELSON	02-873-0022.0000
72	LESLIE & GAYLENE ELSON	02-873-0021.0000
71	HARRY J. LOWE	02-873-0047.0000
70	MARK T. NICHOLSON	02-873-0048.0000
69	MARK T. NICHOLSON	02-873-0048.0000
68	MARK T. NICHOLSON	02-873-0048.0000
67	TERRY P. & KAREN THOMPSON	02-873-00780000
66	DAVID G. OWENS & LINDA WALTERS	02-873-0074.0000
65	DAVID G. OWENS & LINDA WALTERS	02-873-0022.0000
64	RUTH GERMON, JEFFREY WOY, SUE MOORE, PATRICIA WEST & SARAH WOY	02-873-0027.0000
63	DENNIS & DERRELLE RUSCHELL	02-873-0001.0000
62	DENNIS & DERRELLE RUSCHELL	02-873-0001.0000
61	DENNIS & DERRELLE RUSCHELL	02-873-0002.0000
60	DANNY M. & SANDRA J. HOLLADAY	02-873-0003.0000
59	JOHN HUFF HEIRS	02-873-0004.0000
58	MITCHELL DONALD STEVEN	02-873-0083.0000
57	WILLIAM MITCHELL HEIRS	02-873-0023.0000
56	GEORGE SONNEWALD, JR.	02-873-0081.0000
55	GEORGE SONNEWALD, JR.	02-873-0082.0000
54	TRAVIS C. & GREGORY B. STRAUB	02-873-0084.0000
53	BETHANY COLLEGE	02-873-0028.0000
52	BETHANY COLLEGE	02-873-0001.0000
51	BETHANY COLLEGE	02-873-0002.0000
50	BETHANY COLLEGE	02-873-0003.0000
49	BARBARA L. CHAMBERS	02-873-0028.0000
48	JAMES & KATHLEEN KEEGAN	02-873-0027.0000
47	RICHARD FRANCIS GORBY	02-873-0027.0000
46	GENE CHARLES VALENTINE TRUST	02-873-0028.0000
45	MARK W. OWEN & VIRGINIA BEALL KRUEZ	02-873-0024.0000
44	KIMBERLY CARMAN WORTHLEY	02-873-0022.0000
43	KIMBERLY CARMAN WORTHLEY	02-873-0022.0000
42	MARK A. & GEORGIA M. FODAK	02-873-0014.0000
41	JOHN H. JR. & STEPHANIE PROELTCH; KEVIN & JODIE RAY	02-873-0012.0000
40	N/A	02-873-0008.0001
39	ALAN J. & BETH B. KLEIN	02-873-0008.0000
38	JOHN H., SR. & NANCY J. PROELTCH	02-873-0007.0002
37	JOHN H. PROELTCH, JR.	02-873-0007.0001
36	KEVIN & JODY RAY	02-873-0008.0000
35	NORMAN K. BOWMAN	02-873-0004.0000
34	SCOTT A. II & LINDSEY LAW	02-873-0003.0000
33	SCOTT A. II & LINDSEY LAW	02-873-0003.0000
32	RICHARD PACHEO	02-873-0088.0001
31	TYLER N. BROWN	02-873-0088.0000
30	LAWRENCE PAUL SMITH, SR. & PATRICIA SHERON	02-873-0070.0000
29	DEBRA KAY PELAEZ	02-873-0071.0000
28	STARVACGI INDUSTRIES, INC.	02-873-0024.0000

WELL BORE TABLE FOR SURFACE \ ROYALTY OWNERS

REVISIONS:	
COMPANY:	SWN Production Company, LLC
OPERATOR'S:	THOMAS PARKINSON BRK
WELL #:	201H
DISTRICT:	BUFFALO
BROOK:	BROOKE
COUNTY:	STATE: WV
DATE:	09-28-2018
DRAWN BY:	D. REED
SCALE:	N/A
DRAWING NO.:	2018-678
WELL LOCATION PLAT:	

