

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

API 47-009-00234 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 1H
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 4451464.47 Easting 537090.91
Landing Point of Curve Northing 4451467.69 Easting 536980.08
Bottom Hole Northing 4453924.04 Easting 536121.52

Elevation (ft) 1,160.4 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 2/16/2018 Date drilling ceased 3/23/2018
Date completion activities began 5/12/2018 Date completion activities ceased 7/9/2018
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

Freshwater depth(s) ft 401 Open mine(s) (Y/N) depths _____
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

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Reviewed
[Signature] 1-17-19

Reviewed by:
931-17-19

API 47- 009 - 00234 Farm name BETHANY COLLEGE Well number THOMAS PARKINSON BRK 1H

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	481	NEW	J-54.50/48#	296.2, 337.5	Y, 10
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	1737	NEW	J-55/36#		Y, 26
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	14950	NEW	HCP-110/20#		Y
Tubing		2.375	6174	NEW	HCP-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	490	15.60	1.20	588	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	659	15.60	1.18	777.62	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	2,748	15.60	1.90	5221.2	SURFACE	24
Tubing							

Drillers TD (ft) 14,950 Loggers TD (ft) 14,950
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5,412

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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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	SEE	ATTACHMEN	1		

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
		SEE	ATTACHMEN	2				

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PRODUCING FORMATION(S)	DEPTHS	
MARCELLUS	5,987	TVD 6,183 MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2418 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 4,828 mcfpd Oil 526 bpd NGL _____ bpd Water 338 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP		BOTTOM		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT NAME	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
	SEE	ATTACHMENT	3		

Please insert additional pages as applicable.

Drilling Contractor SWN DRILLING COMPANY
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

Logging Company BAKER HUGHES
Address 9110 GROGANS MILL RD City THE WOODLANDS State TX Zip 77380

Cementing Company BJ SERVICES
Address 2228 PHILIPPI PIKE City CLARKSBURG State WV Zip 26309

Stimulating Company US WELL SERVICES
Address 770 S. POST OAK LN #405 City HOUSTON State TX Zip 77056

Please insert additional pages as applicable.

Completed by BOBBY WILLIS Telephone 832-796-2884
Signature [Signature] Title REGULATORY ANALYST Date 10/5/2018

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry



SOUTHWESTERN ENERGY

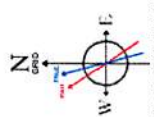
Location: Brooke County, WV
 Field: Brooke
 Facility: Thomas Parkinson BRK Pad

Slot: Slot #1H
 Well: Thomas Parkinson BRK 1H
 Wellbore: Thomas Parkinson BRK 1H.PWB

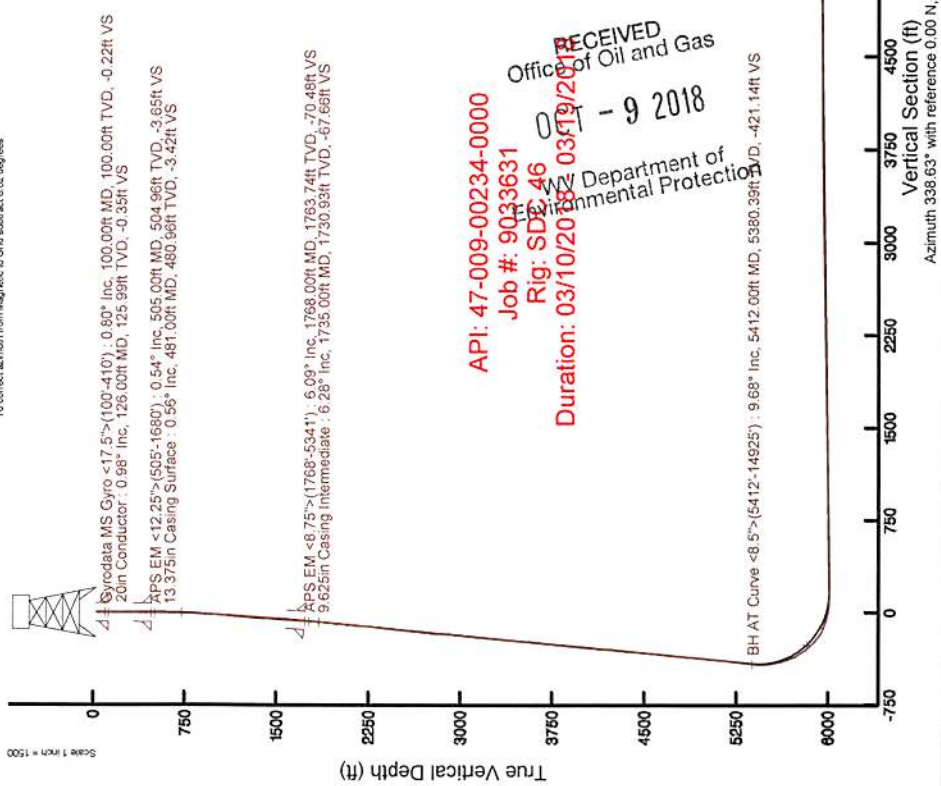
Plot reference wellpath is Thomas Parkinson BRK 1H PWP Rev: A 0	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 46 (RKB)	* = Wellpath was transformed from a different geoidic datum
Measured depths are referenced to SDC 46 (RKB)	North Reference: Grid north
SDC 46 (RKB) to Mean Sea Level: 1187 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot, Slot #1H): -1161 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: thomsuzc on 2018-03-22
	Database: WA, Pennsylvania



Location information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Thomas Parkinson BRK Pad	1762113.450	14604537.070	80°33'50.73"W
Slot	Local N (ft)	Local E (ft)	Latitude
Slot #1H	-23.76	-7.70	40°12'45.987"N
Slot #1H	1762105.749	14604513.323	80°33'50.632"W
SDC 46 (RKB) to Ground level (At Slot, Slot #1H)	26ft		
Mean Sea Level to Ground level (At Slot, Slot #1H)	-1161ft		
SDC 46 (RKB) to Mean Sea Level	1187ft		



User specified Dip: 67.67° Field: 52058 nT
 Magnetic North is 6.34 degrees West of True North (at 3/6/2018)
 Grid North is 0.00 degrees West of True North
 To correct azimuth from True to Grid subtract 0.28 degrees
 To correct azimuth from Magnetic to Grid subtract 6.62 degrees



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 Duration: 03/10/2018 - 03/19/2018
 Rig: SDC 46
 Job #: 9033631
 API: 47-009-00234-0000

Scale 1 inch = 2000

Scale 1 inch = 1000

Vertical Section (ft)
 Azimuth 338.63° with reference 0.00 N, 0.00 E

Projection to Bit: 5906.73ft TVD, 8072.28ft N, 3184.65ft W

BH AT Curve <8.5>(5412°-14925°) : 5380.39ft TVD, 512.50ft S, 154.03ft W
 APS EM <8.75>(1768°-5341°) : 1763.74ft TVD, 88.01ft S, 3.52ft W
 APS EM <12.25>(505°-1680°) : 504.96ft TVD, 1.76ft S, 5.62ft E
 Gyrodatta MS Gyro <17.5>(100°-410°) : 100.00ft TVD, 0.03ft S, 0.42ft E

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #1H
Area	Brooke County, WV	Well	Thomas Parkinson BRK 1H
Field	Brooke	Wellbore	Thomas Parkinson BRK 1H 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	3/22/2018 at 3:47:52 PM
Convergence at slot	0.29° East	Database/Source file	WA_Pennsylvania/Thomas_Parkinson_BRK_1H_AWP_Proj__14950_MD.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-23.76	-7.70	1762105.75	14604513.32	40°12'45.986"N	80°33'50.832"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	1187.00ft
Horizontal Reference Pt	Slot	SDC 46 (RKB) to Mean Sea Level	1187.00ft
Vertical Reference Pt	SDC 46 (RKB)	SDC 46 (RKB) to Ground Level at Slot (Slot #1H)	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	338.63°

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Actual Wellpath Report

Thomas Parkinson BRK 1H AWP Proj: 14950'MD
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #1H
Area	Brooke County, WV	Well	Thomas Parkinson BRK 1H
Field	Brooke	Wellbore	Thomas Parkinson BRK 1H AWP
Facility	Thomas Parkinson BRK Pad		

WELLPATH DATA (180 stations) † = interpolated/extrapolated station															
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00†	0.000	93.870	0.00	0.00	0.00	0.00	1762105.75	14604513.32	40°12'45.986"N	80°33'50.832"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	93.870	26.00	0.00	0.00	0.00	1762105.75	14604513.32	40°12'45.986"N	80°33'50.832"W	0.00	0.000	0.00	0.00	0.00
100.00	0.800	93.870	100.00	-0.22	-0.03	0.52	1762106.26	14604513.29	40°12'45.986"N	80°33'50.825"W	0.52	93.870	1.08	1.08	126.85
125.00	0.980	83.580	124.99	-0.35	-0.02	0.90	1762106.65	14604513.30	40°12'45.986"N	80°33'50.820"W	0.90	91.444	0.96	0.72	-41.16
150.00	0.970	91.050	149.99	-0.49	0.00	1.33	1762107.07	14604513.32	40°12'45.986"N	80°33'50.815"W	1.33	90.117	0.51	-0.04	29.88
175.00	0.980	95.330	174.99	-0.66	-0.03	1.75	1762107.50	14604513.30	40°12'45.986"N	80°33'50.809"W	1.75	90.866	0.29	0.04	17.12
200.00	0.990	100.300	199.98	-0.87	-0.08	2.18	1762107.92	14604513.24	40°12'45.985"N	80°33'50.804"W	2.18	92.235	0.34	0.04	19.88
225.00	1.010	100.600	224.98	-1.10	-0.16	2.60	1762108.35	14604513.16	40°12'45.984"N	80°33'50.798"W	2.61	93.604	0.08	0.08	1.20
250.00	1.040	101.770	249.98	-1.34	-0.25	3.04	1762108.79	14604513.07	40°12'45.983"N	80°33'50.793"W	3.05	94.712	0.15	0.12	4.68
275.00	0.930	106.620	274.97	-1.59	-0.36	3.46	1762109.21	14604512.97	40°12'45.982"N	80°33'50.787"W	3.48	95.861	0.55	-0.44	19.40
300.00	0.940	105.200	299.97	-1.84	-0.47	3.85	1762109.60	14604512.86	40°12'45.981"N	80°33'50.782"W	3.88	96.912	0.10	0.04	-5.68
325.00	0.580	114.190	324.97	-2.05	-0.57	4.17	1762109.91	14604512.75	40°12'45.980"N	80°33'50.778"W	4.20	97.827	1.51	-1.44	35.96
350.00	0.480	118.430	349.97	-2.22	-0.67	4.37	1762110.12	14604512.65	40°12'45.979"N	80°33'50.776"W	4.42	98.765	0.43	-0.40	16.96
375.00	0.610	122.180	374.96	-2.41	-0.80	4.58	1762110.33	14604512.53	40°12'45.978"N	80°33'50.773"W	4.65	99.852	0.54	0.52	15.00
400.00	0.610	121.670	399.96	-2.62	-0.94	4.80	1762110.55	14604512.39	40°12'45.977"N	80°33'50.770"W	4.89	101.023	0.02	0.00	-2.04
410.00	0.700	125.190	409.96	-2.72	-1.00	4.90	1762110.65	14604512.32	40°12'45.976"N	80°33'50.769"W	5.00	101.525	0.99	0.90	35.20
505.00	0.540	160.710	504.96	-3.65	-1.76	5.52	1762111.27	14604511.57	40°12'45.968"N	80°33'50.761"W	5.79	107.642	0.43	-0.17	37.39
597.00	0.910	166.680	596.95	-4.80	-2.88	5.83	1762111.58	14604510.45	40°12'45.957"N	80°33'50.757"W	6.50	116.247	0.41	0.40	6.49
693.00	1.600	188.410	692.93	-6.72	-4.94	5.81	1762111.56	14604508.38	40°12'45.937"N	80°33'50.757"W	7.63	130.383	0.86	0.72	22.64
786.00	2.890	194.600	785.85	-9.75	-8.50	5.03	1762110.78	14604504.83	40°12'45.902"N	80°33'50.768"W	9.87	149.368	1.41	1.39	6.66
879.00	3.450	198.950	878.71	-13.78	-13.41	3.53	1762109.28	14604499.92	40°12'45.853"N	80°33'50.787"W	13.87	165.248	0.65	0.60	4.68
972.00	4.100	207.820	971.51	-18.08	-19.00	1.07	1762106.82	14604494.33	40°12'45.798"N	80°33'50.819"W	19.03	176.772	0.94	0.70	9.54
1065.00	4.890	210.190	1064.22	-22.72	-25.37	-2.47	1762103.28	14604487.97	40°12'45.735"N	80°33'50.865"W	25.49	185.569	0.87	0.85	2.55
1157.00	4.740	212.390	1155.90	-27.41	-31.97	-6.48	1762099.27	14604481.37	40°12'45.670"N	80°33'50.918"W	32.62	191.462	0.26	-0.16	2.39
1250.00	4.930	210.110	1248.57	-32.17	-38.67	-10.54	1762095.21	14604474.67	40°12'45.604"N	80°33'50.970"W	40.08	195.254	0.29	0.20	-2.45
1343.00	5.610	210.860	1341.17	-37.44	-46.03	-14.88	1762090.87	14604467.31	40°12'45.532"N	80°33'51.027"W	48.37	197.917	0.73	0.73	0.81
1435.00	5.780	208.410	1432.72	-43.18	-53.96	-19.39	1762086.36	14604459.38	40°12'45.454"N	80°33'51.085"W	57.34	199.767	0.32	0.18	-2.66
1528.00	6.070	202.360	1525.22	-49.76	-62.63	-23.49	1762082.27	14604450.72	40°12'45.368"N	80°33'51.139"W	66.89	200.560	0.74	0.31	-6.51
1621.00	6.520	197.280	1617.66	-57.44	-72.22	-26.93	1762078.83	14604441.13	40°12'45.274"N	80°33'51.184"W	77.07	200.450	0.77	0.48	-5.46
1680.00	6.590	195.790	1676.28	-62.75	-78.67	-28.85	1762076.91	14604434.68	40°12'45.210"N	80°33'51.209"W	83.79	200.136	0.31	0.12	-2.53

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Area	Brooke County, WV	Well	Thomas Parkinson BRK 1H
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Facility	Thomas Parkinson BRK Pad		

WELLPATH DATA (180 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]
1768.00	6.090	196.200	1763.74	-70.48	-88.01	-31.52	1762074.24	14604425.34	40°12'45.118"N	80°33'51.244"W	93.49	199.705	0.57	-0.57	0.47
1815.00	5.680	196.560	1810.49	-74.29	-92.64	-32.88	1762072.88	14604420.72	40°12'45.072"N	80°33'51.262"W	98.30	199.542	0.88	-0.87	0.77
1907.00	6.890	194.510	1901.94	-82.35	-102.34	-35.56	1762070.20	14604411.02	40°12'44.976"N	80°33'51.297"W	108.35	199.160	1.34	1.32	-2.23
2000.00	6.540	192.040	1994.30	-91.29	-112.92	-38.06	1762067.70	14604400.44	40°12'44.872"N	80°33'51.330"W	119.17	198.627	0.49	-0.38	-2.66
2093.00	5.580	185.260	2086.78	-99.75	-122.61	-39.58	1762066.18	14604390.76	40°12'44.776"N	80°33'51.350"W	128.84	197.892	1.29	-1.03	-7.29
2185.00	6.640	186.760	2178.26	-108.44	-132.34	-40.62	1762065.15	14604381.03	40°12'44.680"N	80°33'51.364"W	138.44	197.062	1.17	1.15	1.63
2278.00	7.540	190.200	2270.54	-118.38	-143.69	-42.33	1762063.43	14604369.69	40°12'44.568"N	80°33'51.387"W	149.79	196.416	1.07	0.97	3.70
2371.00	7.170	183.370	2362.78	-128.85	-155.49	-43.75	1762062.01	14604357.89	40°12'44.452"N	80°33'51.406"W	161.53	195.716	1.02	-0.40	-7.34
2463.00	6.580	194.180	2454.12	-138.36	-166.33	-45.38	1762060.38	14604347.06	40°12'44.345"N	80°33'51.427"W	172.41	195.262	1.54	-0.64	11.75
2556.00	7.800	196.060	2546.39	-147.70	-177.56	-48.43	1762057.33	14604335.83	40°12'44.234"N	80°33'51.468"W	184.05	195.258	1.34	1.31	2.02
2652.00	7.180	194.110	2641.57	-157.76	-189.64	-51.70	1762054.07	14604323.76	40°12'44.115"N	80°33'51.510"W	196.56	195.249	0.70	-0.65	-2.03
2744.00	6.930	199.000	2732.87	-166.67	-200.46	-54.91	1762050.86	14604312.94	40°12'44.008"N	80°33'51.552"W	207.85	195.318	0.71	-0.27	5.32
2837.00	6.290	191.990	2825.26	-175.20	-210.75	-57.79	1762047.98	14604302.65	40°12'43.906"N	80°33'51.590"W	218.53	195.335	1.11	-0.69	-7.54
2930.00	6.640	204.720	2917.67	-183.19	-220.62	-61.10	1762044.67	14604292.79	40°12'43.809"N	80°33'51.634"W	228.92	195.480	1.58	0.38	13.69
3023.00	7.560	202.970	3009.96	-191.29	-231.14	-65.74	1762040.04	14604282.27	40°12'43.705"N	80°33'51.694"W	240.30	195.876	1.02	0.99	-1.88
3116.00	7.380	201.080	3102.17	-200.08	-242.34	-70.27	1762035.50	14604271.07	40°12'43.595"N	80°33'51.753"W	252.33	196.170	0.33	-0.19	-2.03
3208.00	6.490	192.700	3193.50	-208.74	-252.93	-73.54	1762032.24	14604260.49	40°12'43.490"N	80°33'51.796"W	263.40	196.212	1.46	-0.97	-9.11
3301.00	6.180	198.380	3285.93	-216.95	-262.81	-76.27	1762029.50	14604250.62	40°12'43.393"N	80°33'51.832"W	273.65	196.184	0.75	-0.33	6.11
3394.00	7.310	203.040	3378.28	-225.02	-273.00	-80.17	1762025.61	14604240.43	40°12'43.292"N	80°33'51.883"W	284.53	196.365	1.35	1.22	5.01
3486.00	7.180	194.580	3469.55	-233.86	-283.95	-83.91	1762021.88	14604229.48	40°12'43.184"N	80°33'51.931"W	296.09	196.462	1.17	-0.14	-9.20
3579.00	6.370	184.840	3561.90	-243.19	-294.72	-85.80	1762019.98	14604218.72	40°12'43.078"N	80°33'51.957"W	306.96	196.232	1.51	-0.87	-10.47
3672.00	6.600	194.050	3654.31	-252.17	-305.05	-87.54	1762018.25	14604208.40	40°12'42.976"N	80°33'51.980"W	317.36	196.012	1.14	0.25	9.90
3764.00	7.370	199.040	3745.63	-260.98	-315.75	-90.75	1762015.04	14604197.69	40°12'42.870"N	80°33'52.022"W	328.53	196.034	1.06	0.84	5.42
3857.00	7.380	194.720	3837.86	-270.34	-327.17	-94.21	1762011.58	14604186.28	40°12'42.758"N	80°33'52.067"W	340.46	196.064	0.60	0.01	-4.65
3950.00	7.050	199.800	3930.13	-279.47	-338.31	-97.66	1762008.13	14604175.14	40°12'42.648"N	80°33'52.112"W	352.13	196.102	0.77	-0.35	5.46
4043.00	7.920	205.310	4022.33	-288.16	-349.48	-102.33	1762003.46	14604163.98	40°12'42.537"N	80°33'52.173"W	364.15	196.321	1.21	0.94	5.92
4135.00	7.410	202.940	4113.51	-296.75	-360.67	-107.36	1761998.44	14604152.79	40°12'42.427"N	80°33'52.239"W	376.31	196.576	0.65	-0.55	-2.58
4228.00	6.740	196.760	4205.80	-305.34	-371.42	-111.27	1761994.53	14604142.05	40°12'42.321"N	80°33'52.290"W	387.73	196.677	1.09	-0.72	-6.65
4321.00	6.280	185.480	4298.21	-314.17	-381.71	-113.33	1761992.47	14604131.76	40°12'42.220"N	80°33'52.317"W	398.18	196.536	1.46	-0.49	-12.13
4414.00	6.340	199.310	4390.65	-322.60	-391.62	-115.51	1761990.28	14604121.86	40°12'42.122"N	80°33'52.346"W	408.30	196.434	1.63	0.06	14.87

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Actual Wellpath Report

Thomas Parkinson BRK 1H AWP Proj: 14950'MD
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #1H
Area	Brooke County, WV	Well	Thomas Parkinson BRK 1H
Field	Brooke	Wellbore	Thomas Parkinson BRK 1H AWB
Facility	Thomas Parkinson BRK Pad		

WELLPATH DATA (180 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]
4506.00	6.130	195.970	4482.11	-330.36	-401.13	-118.54	1761987.25	14604112.34	40°12'42.028"N	80°33'52.385"W	418.28	196.463	0.46	-0.23	-3.63
4602.00	6.880	203.650	4577.49	-338.50	-411.33	-122.26	1761983.54	14604102.15	40°12'41.927"N	80°33'52.434"W	429.11	196.553	1.19	0.78	8.00
4695.00	6.380	196.250	4669.87	-346.53	-421.39	-125.94	1761979.86	14604092.09	40°12'41.828"N	80°33'52.482"W	439.81	196.639	1.06	-0.54	-7.96
4784.00	7.250	197.330	4758.24	-354.83	-431.50	-129.00	1761976.80	14604081.99	40°12'41.728"N	80°33'52.522"W	450.37	196.644	0.99	0.98	1.21
4877.00	7.270	194.340	4850.49	-364.19	-442.80	-132.20	1761973.60	14604070.69	40°12'41.617"N	80°33'52.564"W	462.12	196.623	0.41	0.02	-3.22
4969.00	6.880	197.330	4941.79	-373.22	-453.70	-135.28	1761970.52	14604059.79	40°12'41.509"N	80°33'52.604"W	473.44	196.603	0.58	-0.42	3.25
5062.00	6.480	192.690	5034.16	-381.91	-464.14	-138.10	1761967.71	14604049.36	40°12'41.406"N	80°33'52.641"W	484.25	196.569	0.72	-0.43	-4.99
5155.00	7.860	202.980	5126.44	-390.81	-475.12	-141.73	1761964.07	14604038.39	40°12'41.298"N	80°33'52.689"W	495.81	196.610	2.02	1.48	11.06
5248.00	8.740	199.400	5218.46	-400.70	-487.64	-146.56	1761959.24	14604025.87	40°12'41.174"N	80°33'52.752"W	509.18	196.728	1.10	0.95	-3.85
5341.00	9.080	195.560	5310.34	-411.92	-501.37	-150.88	1761954.93	14604012.15	40°12'41.039"N	80°33'52.808"W	523.58	196.748	0.74	0.37	-4.13
5412.00	9.680	196.070	5380.39	-421.14	-512.50	-154.03	1761951.78	14604001.02	40°12'40.929"N	80°33'52.850"W	535.15	196.728	0.85	0.85	0.72
5505.00	9.720	260.260	5472.31	-425.78	-521.37	-163.96	1761941.85	14603992.16	40°12'40.842"N	80°33'52.978"W	546.54	197.457	11.05	0.04	69.02
5598.00	14.020	306.840	5563.49	-414.59	-515.93	-180.76	1761925.06	14603997.59	40°12'40.896"N	80°33'53.195"W	546.68	199.308	10.90	4.62	50.09
5691.00	18.900	324.840	5652.71	-390.36	-496.84	-198.47	1761907.36	14604016.68	40°12'41.086"N	80°33'53.422"W	535.01	201.775	7.53	5.25	19.35
5783.00	26.940	334.560	5737.41	-355.03	-465.77	-216.04	1761889.80	14604047.73	40°12'41.394"N	80°33'53.646"W	513.44	204.883	9.63	8.74	10.57
5876.00	36.850	346.150	5816.34	-306.20	-419.51	-231.82	1761874.02	14604093.97	40°12'41.852"N	80°33'53.847"W	479.30	208.924	12.48	10.66	12.46
5969.00	46.450	344.620	5885.75	-244.89	-359.80	-247.47	1761858.38	14604153.66	40°12'42.443"N	80°33'54.044"W	436.69	214.520	10.38	10.32	-1.65
6016.00	52.580	343.490	5916.25	-209.32	-325.45	-257.30	1761848.55	14604188.00	40°12'42.782"N	80°33'54.169"W	414.87	218.330	13.17	13.04	-2.40
6062.00	59.770	342.690	5941.84	-171.24	-288.92	-268.42	1761837.44	14604224.52	40°12'43.144"N	80°33'54.310"W	394.36	222.893	15.70	15.63	-1.74
6108.00	66.800	342.580	5962.51	-130.28	-249.72	-280.67	1761825.18	14604263.69	40°12'43.532"N	80°33'54.466"W	375.69	228.339	15.28	15.28	-0.24
6155.00	72.370	342.230	5978.90	-86.35	-207.75	-293.99	1761811.88	14604305.65	40°12'43.947"N	80°33'54.634"W	359.99	234.752	11.87	11.85	-0.74
6201.00	76.810	342.360	5991.12	-42.10	-165.52	-307.47	1761798.40	14604347.87	40°12'44.365"N	80°33'54.806"W	349.19	241.705	9.66	9.65	0.28
6247.00	80.790	342.270	6000.05	2.92	-122.54	-321.17	1761784.70	14604390.83	40°12'44.791"N	80°33'54.980"W	343.76	249.117	8.65	8.65	-0.20
6294.00	84.330	342.290	6006.14	49.42	-78.15	-335.36	1761770.52	14604435.20	40°12'45.230"N	80°33'55.160"W	344.34	256.882	7.53	7.53	0.04
6340.00	87.690	342.510	6009.34	95.21	-34.42	-349.23	1761756.65	14604478.92	40°12'45.663"N	80°33'55.336"W	350.92	264.372	7.32	7.30	0.48
6387.00	90.060	341.420	6010.26	142.11	10.26	-363.78	1761742.11	14604523.58	40°12'46.105"N	80°33'55.520"W	363.92	271.616	5.55	5.04	-2.32
6433.00	90.000	340.110	6010.24	188.08	53.69	-378.93	1761726.96	14604567.00	40°12'46.535"N	80°33'55.713"W	382.72	278.065	2.85	-0.13	-2.85
6526.00	90.090	340.900	6010.16	281.03	141.36	-409.97	1761695.94	14604654.63	40°12'47.403"N	80°33'56.107"W	433.65	289.025	0.85	0.10	0.85
6618.00	90.250	339.910	6009.89	372.98	228.03	-440.82	1761665.10	14604741.27	40°12'48.261"N	80°33'56.500"W	496.31	297.352	1.09	0.17	-1.08
6711.00	90.650	338.880	6009.16	465.97	315.08	-473.55	1761632.38	14604828.28	40°12'49.122"N	80°33'56.916"W	568.79	303.638	1.19	0.43	-1.11

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #1H
Area	Brooke County, WV	Well	Thomas Parkinson BRK 1H
Field	Brooke	Wellbore	Thomas Parkinson BRK 1H AWB
Facility	Thomas Parkinson BRK Pad		

WELLPATH DATA (180 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]
6804.00	90.710	336.970	6008.06	558.95	401.25	-508.49	1761597.45	14604914.42	40°12'49.976"N	80°33'57.361"W	647.74	308.277	2.05	0.06	-2.05
6896.00	90.710	336.380	6006.92	650.89	485.72	-544.92	1761561.04	14604998.86	40°12'50.812"N	80°33'57.825"W	729.98	311.713	0.64	0.00	-0.64
6989.00	91.380	335.920	6005.22	743.79	570.77	-582.52	1761523.46	14605083.87	40°12'51.654"N	80°33'58.304"W	815.54	314.416	0.87	0.72	-0.49
7082.00	91.290	336.560	6003.05	836.68	655.86	-619.98	1761486.01	14605168.93	40°12'52.497"N	80°33'58.782"W	902.51	316.611	0.69	-0.10	0.69
7175.00	91.380	338.520	6000.89	929.64	741.78	-655.49	1761450.51	14605254.82	40°12'53.348"N	80°33'59.234"W	989.90	318.534	2.11	0.10	2.11
7267.00	90.950	342.340	5999.02	1021.55	828.43	-686.30	1761419.72	14605341.44	40°12'54.206"N	80°33'59.626"W	1075.78	320.361	4.18	-0.47	4.15
7360.00	90.890	346.920	5997.52	1114.01	918.07	-710.94	1761395.08	14605431.04	40°12'55.093"N	80°33'59.938"W	1161.16	322.246	4.92	-0.06	4.92
7453.00	90.830	347.940	5996.13	1205.90	1008.83	-731.18	1761374.86	14605521.76	40°12'55.990"N	80°34'00.193"W	1245.93	324.066	1.10	-0.06	1.10
7546.00	90.890	347.040	5994.73	1297.78	1099.61	-751.32	1761354.72	14605612.51	40°12'56.889"N	80°34'00.447"W	1331.77	325.657	0.97	0.06	-0.97
7638.00	91.020	346.650	5993.20	1388.82	1189.18	-772.25	1761333.79	14605702.05	40°12'57.775"N	80°34'00.711"W	1417.93	327.000	0.45	0.14	-0.42
7731.00	90.860	347.770	5991.67	1480.77	1279.86	-792.84	1761313.22	14605792.69	40°12'58.672"N	80°34'00.971"W	1505.54	328.223	1.22	-0.17	1.20
7824.00	90.830	343.760	5990.30	1573.02	1369.98	-815.70	1761290.36	14605882.77	40°12'59.563"N	80°34'01.260"W	1594.43	329.230	4.31	-0.03	-4.31
7917.00	90.980	340.970	5988.83	1665.80	1458.59	-843.87	1761262.21	14605971.35	40°13'00.440"N	80°34'01.617"W	1685.11	329.948	3.00	0.16	-3.00
8010.00	91.010	338.430	5987.21	1758.76	1545.79	-876.12	1761229.96	14606058.52	40°13'01.304"N	80°34'02.028"W	1776.81	330.456	2.73	0.03	-2.73
8102.00	90.920	340.170	5985.66	1850.74	1631.84	-908.64	1761197.46	14606144.53	40°13'02.155"N	80°34'02.441"W	1867.76	330.890	1.89	-0.10	1.89
8195.00	90.890	340.120	5984.20	1943.70	1719.30	-940.22	1761165.89	14606231.96	40°13'03.021"N	80°34'02.843"W	1959.59	331.327	0.06	-0.03	-0.05
8288.00	91.080	339.450	5982.60	2036.66	1806.56	-972.35	1761133.77	14606319.18	40°13'03.885"N	80°34'03.252"W	2051.61	331.709	0.75	0.20	-0.72
8380.00	90.950	338.720	5980.97	2128.65	1892.48	-1005.19	1761100.95	14606405.07	40°13'04.736"N	80°34'03.670"W	2142.87	332.025	0.81	-0.14	-0.79
8473.00	90.770	335.070	5979.57	2221.58	1978.00	-1041.67	1761064.48	14606490.56	40°13'05.583"N	80°34'04.135"W	2235.52	332.227	3.93	-0.19	-3.92
8566.00	90.770	333.490	5978.32	2314.30	2061.77	-1082.03	1761024.14	14606574.30	40°13'06.412"N	80°34'04.650"W	2328.45	332.309	1.70	0.00	-1.70
8659.00	90.860	336.030	5977.00	2407.07	2145.88	-1121.68	1760984.50	14606658.37	40°13'07.245"N	80°34'05.155"W	2421.35	332.403	2.73	0.10	2.73
8751.00	90.860	338.820	5975.62	2499.03	2230.81	-1156.99	1760949.21	14606743.27	40°13'08.086"N	80°34'05.605"W	2512.99	332.587	3.03	0.00	3.03
8844.00	90.890	342.430	5974.20	2591.95	2318.52	-1187.83	1760918.37	14606830.95	40°13'08.955"N	80°34'05.997"W	2605.09	332.873	3.88	0.03	3.88
8937.00	90.890	345.220	5972.75	2684.54	2407.82	-1213.73	1760892.48	14606920.21	40°13'09.838"N	80°34'06.326"W	2696.43	333.248	3.00	0.00	3.00
9030.00	90.800	346.610	5971.38	2776.78	2498.01	-1236.36	1760869.86	14607010.37	40°13'10.731"N	80°34'06.612"W	2787.23	333.667	1.50	-0.10	1.49
9122.00	90.860	346.030	5970.05	2867.94	2587.39	-1258.12	1760848.12	14607099.72	40°13'11.615"N	80°34'06.886"W	2877.06	334.069	0.63	0.07	-0.63
9215.00	90.890	343.920	5968.63	2960.36	2677.19	-1282.22	1760824.02	14607189.49	40°13'12.504"N	80°34'07.192"W	2968.41	334.408	2.27	0.03	-2.27
9308.00	90.890	343.420	5967.18	3052.99	2766.43	-1308.37	1760797.88	14607278.69	40°13'13.387"N	80°34'07.523"W	3060.22	334.688	0.54	0.00	-0.54
9400.00	90.860	342.360	5965.78	3144.72	2854.35	-1335.43	1760770.83	14607366.57	40°13'14.257"N	80°34'07.866"W	3151.30	334.927	1.15	-0.03	-1.15
9493.00	90.830	341.330	5964.41	3237.56	2942.71	-1364.41	1760741.87	14607454.90	40°13'15.131"N	80°34'08.234"W	3243.63	335.125	1.11	-0.03	-1.11

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY
Area	Brooke County, WV
Field	Brooke
Facility	Thomas Parkinson BRK Pad
Slot	Wellbore
Slot #1H	Thomas Parkinson BRK 1H

WELLPATH DATA (180 stations)														
MD	Inclination	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)	(ft)	(°)	(°/100ft)	(°/100ft)	(°/100ft)
9586.00	90.800	338.540	5963.08	3330.52	-1396.31	1760709.98	14607542.20	40°13'15.996"N	80°34'08.640"W	3336.29	335.259	3.00	-0.03	-3.00
9678.00	90.800	334.180	5961.80	3422.42	-1433.19	1760673.12	14607626.42	40°13'16.830"N	80°34'09.110"W	3428.25	335.288	4.74	0.00	-4.74
9771.00	90.580	331.440	5960.68	3514.92	-1475.67	1760630.64	14607709.10	40°13'17.649"N	80°34'09.653"W	3521.15	335.223	2.96	-0.24	-2.96
9864.00	90.770	331.450	5959.58	3607.18	-1520.13	1760586.21	14607790.75	40°13'18.459"N	80°34'10.221"W	3613.94	335.126	0.20	0.20	0.01
9957.00	90.520	337.080	5958.53	3699.87	-1560.49	1760545.86	14607874.45	40°13'19.288"N	80°34'10.736"W	3706.89	335.104	6.06	-0.27	6.05
10049.00	90.740	343.210	5957.52	3791.79	-1591.72	1760514.64	14607960.90	40°13'20.144"N	80°34'11.133"W	3798.49	335.226	6.67	0.24	6.66
10142.00	90.550	346.790	5956.47	3884.19	-1615.78	1760490.59	14608050.68	40°13'21.033"N	80°34'11.438"W	3890.15	335.459	3.85	-0.20	3.85
10235.00	90.460	346.090	5955.65	3976.33	-1637.59	1760468.79	14608141.05	40°13'21.927"N	80°34'11.713"W	3981.49	335.713	0.76	-0.10	-0.75
10327.00	90.460	347.570	5954.92	4067.38	-1658.55	1760447.84	14608230.59	40°13'22.814"N	80°34'11.978"W	4071.79	335.963	1.61	0.00	1.61
10420.00	90.520	347.860	5954.12	4159.21	-1678.33	1760428.06	14608321.42	40°13'23.712"N	80°34'12.227"W	4162.88	336.224	0.32	0.06	0.31
10513.00	90.460	350.430	5953.32	4250.64	-1695.85	1760410.56	14608412.71	40°13'24.616"N	80°34'12.447"W	4253.57	336.504	2.76	-0.06	2.76
10605.00	90.520	349.510	5952.54	4340.84	-1711.87	1760394.54	14608503.27	40°13'25.512"N	80°34'12.648"W	4343.09	336.786	1.00	0.07	-1.00
10698.00	90.490	342.990	5951.72	4432.96	-1733.96	1760372.46	14608593.51	40°13'26.405"N	80°34'12.927"W	4434.79	336.984	7.01	-0.03	-7.01
10790.00	90.310	336.360	5950.07	4524.90	-1765.90	1760340.53	14608679.70	40°13'27.258"N	80°34'13.334"W	4526.64	337.039	7.21	-0.20	-7.21
10883.00	90.550	333.680	5950.38	4617.75	-1804.51	1760301.94	14608764.27	40°13'28.096"N	80°34'13.826"W	4619.60	337.007	1.93	0.26	-1.91
10976.00	90.580	333.630	5949.46	4710.45	-1845.12	1760261.34	14608847.89	40°13'28.925"N	80°34'14.344"W	4712.48	336.950	1.02	0.03	-1.02
11069.00	90.580	334.510	5948.52	4803.15	-1885.78	1760220.69	14608931.49	40°13'29.753"N	80°34'14.863"W	4805.36	336.894	0.95	0.00	0.95
11162.00	90.620	335.240	5947.54	4895.95	-1925.27	1760181.22	14609015.66	40°13'30.587"N	80°34'15.367"W	4898.30	336.856	0.79	0.04	0.78
11254.00	90.550	337.290	5946.60	4987.86	-1962.29	1760144.21	14609099.83	40°13'31.421"N	80°34'15.839"W	4990.28	336.845	2.23	-0.08	2.23
11347.00	90.830	339.920	5945.48	5080.84	-1996.21	1760110.30	14609186.38	40°13'32.278"N	80°34'16.271"W	5083.22	336.877	2.84	0.30	2.83
11440.00	90.830	341.470	5944.14	5173.77	-2026.96	1760079.57	14609274.10	40°13'33.147"N	80°34'16.662"W	5176.01	336.946	1.67	0.00	1.67
11533.00	90.830	341.290	5942.79	5266.65	-2056.65	1760049.89	14609362.19	40°13'34.019"N	80°34'17.039"W	5268.72	337.024	0.19	0.00	-0.19
11626.00	90.770	339.720	5941.49	5359.59	-2087.68	1760018.87	14609449.82	40°13'34.887"N	80°34'17.434"W	5361.54	337.084	1.69	-0.06	-1.69
11718.00	90.180	343.860	5940.73	5451.43	-2116.42	1759990.14	14609537.15	40°13'35.752"N	80°34'17.799"W	5453.22	337.163	4.55	-0.64	4.50
11811.00	90.220	345.420	5940.40	5543.91	-2141.06	1759965.52	14609626.79	40°13'36.639"N	80°34'18.111"W	5545.43	337.288	1.68	0.04	1.68
11904.00	90.310	343.720	5939.97	5636.41	-2165.80	1759940.79	14609716.40	40°13'37.526"N	80°34'18.424"W	5637.69	337.408	1.83	0.10	-1.83
11997.00	90.370	341.810	5939.42	5729.16	-2193.35	1759913.24	14609805.19	40°13'38.405"N	80°34'18.774"W	5730.29	337.495	2.05	0.06	-2.05
12089.00	90.460	341.190	5938.76	5821.04	-2222.54	1759884.06	14609892.40	40°13'39.268"N	80°34'19.145"W	5822.06	337.558	0.68	0.10	-0.67
12182.00	90.620	339.380	5937.88	5914.00	-2253.91	1759852.70	14609979.90	40°13'40.135"N	80°34'19.544"W	5914.95	337.601	1.95	0.17	-1.95
12275.00	90.550	338.700	5936.93	6006.99	-2287.18	1759819.45	14610066.71	40°13'40.995"N	80°34'19.968"W	6007.92	337.623	0.74	-0.08	-0.73

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HOLE & CASING SECTIONS - Ref Wellbore: Thomas Parkinson BRK 1H AWB Ref Wellpath: Thomas Parkinson BRK 1H AWP Proj: 14950'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	125.99	0.00	0.00	-0.02	0.92
17.5in Open Hole	126.00	501.00	375.00	125.99	500.96	-0.02	0.92	-1.72	5.51
13.375in Casing Surface	26.00	481.00	455.00	26.00	480.96	0.00	0.00	-1.55	5.43
12.25in Open Hole	501.00	1755.00	1254.00	500.96	1750.81	-1.72	5.51	-86.68	-31.14
9.625in Casing Intermediate	26.00	1735.00	1709.00	26.00	1730.93	0.00	0.00	-84.60	-30.54
8.75in Open Hole	1755.00	5412.00	3657.00	1750.81	5380.39	-86.68	-31.14	-512.50	-154.03
8.5in Open Hole	5412.00	14950.00	9538.00	5380.39	5906.73	-512.50	-154.03	8072.28	-3181.65

TARGETS									
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	
Thomas Parkinson BRK 1H BHL Rev-2	5904.00	8125.48	-3179.72	1758927.26	14612635.68	40°14'06.433"N	80°34'31.316"W	point	
Thomas Parkinson BRK 1H LP Rev-2	6010.00	28.31	-376.72	1761729.17	14604541.62	40°12'46.284"N	80°33'55.686"W	point	

WELLPATH COMPOSITION - Ref Wellbore: Thomas Parkinson BRK 1H AWB Ref Wellpath: Thomas Parkinson BRK 1H AWP Proj: 14950'MD				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	410.00	Gyrodata standard - Drop gyro or Multi-shot	02_Gyrodata MS Gyro <17-1/2"> (100'-410')	Thomas Parkinson BRK 1H AWB
410.00	1680.00	BHI NaviTrak (Axial)	03_APS EM <12-1/4"> (410')(505'-1680')	Thomas Parkinson BRK 1H AWB
1680.00	5341.00	BHI NaviTrak (Axial)	04_APS EM <8-3/4"> (1680')(1768'-5341')	Thomas Parkinson BRK 1H AWB
5341.00	14925.00	BHI AutoTrak Curve (Short)	05_BH AT Curve <8-1/2"> (5341')(5412'-14925')	Thomas Parkinson BRK 1H AWB
14925.00	14950.00	Blind Drilling (std)	Projection to bit	Thomas Parkinson BRK 1H AWB

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #1H
Area	Brooke County, WV	Well	Thomas Parkinson BRK 1H
Field	Brooke	Wellbore	Thomas Parkinson BRK 1H AWB
Facility	Thomas Parkinson BRK Pad		

COMMENTS
<p>Wellpath general comments API: 47-009-00234-0000 Job #: 9033631 Rig: SDC 46 Duration: 03/10/2018 - 03/19/2018</p>

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/12/2018
Job End Date:	6/3/2018
State:	West Virginia
County:	Brooke
API Number:	47-009-00234-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Thomas Parkinson BRK 1H
Latitude:	40.21277402
Longitude:	-80.56411996
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	5,973
Total Base Water Volume (gal):	10,161,104
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	82.31025	
Sand	J.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	16.62566	
HCL Acid (12.6%-17.5%)	J.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.40000	0.78154	
			Hydrogen Chloride	7647-01-0	17.50000	0.18171	
WFRA-2000	J.S. Well Services, LLC	Friction Reducer	Water	7732-18-5	60.00000	0.04187	
			2-Propenoic acid, polymer with 2 propenamides	9003-06-9	30.00000	0.02093	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01717	
BIOC11219A	Nalco Champion	Anti-Bacterial Agent	Methanol	64-17-5	60.00000	0.00886	
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00563	
			Glutaraldehyde	111-30-8	10.00000	0.00188	

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SCAL16486A	Nalco Champion	Scale Inhibitor				
			Ethylene Glycol	107-21-1	30.00000	0.00163
			Amine Triphosphate	Proprietary	30.00000	0.00146
AI-303	J.S. Well Services, LLC	Acid Corrosion Inhibitors				
			Ethylene glycol	107-21-1	40.00000	0.00036
			Cinnamaldehyde	104-55-2	20.00000	0.00013
			Formic acid	64-18-6	20.00000	0.00013
			Butyl cellosolve	111-76-2	20.00000	0.00012
			Polyether	60828-78-6	10.00000	0.00006
			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, hydrotreated light naphthenic	64742-53-6	100.00000	0.00051
AP One	J.S. Well Services, LLC	Gel Breakers				
			Ammonium Persulfate	7727-54-0	100.00000	0.00008

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)

THOMAS PARKINSON BRK 1H
ATTACHMENT 1
PERF REPORT

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	7/4/2018	14,866	14,769	33
2	5/15/2018	14,734	14,627	42
3	5/16/2018	14,594	14,487	42
4	5/17/2018	14,454	14,347	42
5	5/17/2018	14,314	14,207	42
6	5/17/2018	14,174	14,067	42
7	5/18/2018	14,034	13,927	42
8	5/18/2018	13,894	13,787	42
9	5/18/2018	13,759	13,647	42
10	5/19/2018	13,614	13,510	42
11	5/19/2018	13,474	13,367	42
12	5/19/2018	13,334	13,227	42
13	5/20/2018	13,194	13,087	42
14	5/20/2018	13,054	12,947	42
15	5/20/2018	12,914	12,807	42
16	5/21/2018	12,774	12,667	42
17	5/21/2018	12,634	12,527	42
18	5/22/2018	12,494	12,387	42
19	5/22/2018	12,354	12,247	42
20	5/23/2018	12,214	12,107	42
21	5/23/2018	12,074	11,967	42
22	5/24/2018	11,934	11,827	42
23	5/24/2018	11,794	11,687	42
24	5/24/2018	11,654	11,547	42
25	5/24/2018	11,514	11,407	42
26	5/25/2018	11,374	11,267	42
27	5/25/2018	11,234	11,127	42
28	5/26/2018	11,094	10,987	42
29	5/26/2018	10,954	10,847	42
30	5/26/2018	10,814	10,707	42
31	5/27/2018	10,674	10,567	42
32	5/27/2018	10,534	10,427	42
33	5/27/2018	10,394	10,287	42
34	5/28/2018	10,254	10,147	42
35	5/28/2018	10,114	10,007	42
36	5/28/2018	9,974	9,867	42
37	5/28/2018	9,834	9,727	42
38	5/29/2018	9,694	9,587	42
39	5/29/2018	9,554	9,447	42
40	5/29/2018	9,414	9,307	42
41	5/29/2018	9,274	9,167	42
42	5/30/2018	9,134	9,027	42
43	5/30/2018	8,994	8,887	42

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THOMAS PARKINSON BRK 1H
ATTACHMENT 1
PERF REPORT

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
44	5/30/2018	8,854	8,747	42
45	5/31/2018	8,714	8,607	42
46	5/31/2018	8,574	8,467	42
47	5/31/2018	8,434	8,323	42
48	5/31/2018	8,294	8,187	42
49	6/1/2018	8,154	8,047	42
50	6/1/2018	8,014	7,907	42
51	6/1/2018	7,874	7,767	42
52	6/1/2018	7,734	7,627	42
53	6/1/2018	7,594	7,487	42
54	6/1/2018	7,454	7,347	42
55	6/1/2018	7,314	7,207	42
56	6/2/2018	7,174	7,067	42
57	6/2/2018	7,034	6,927	42
58	6/2/2018	6,894	6,787	42
59	6/2/2018	6,747	6,647	42
60	6/2/2018	6,614	6,507	42
61	6/2/2018	6,474	6,367	42
62	6/2/2018	6,334	6,227	42

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THOMAS PARKINSON BRK 1H

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	5/12/2018	41	8,643	8,414	6,069	13,840	6,023	0
2	5/15/2018	86	7,552	5,449	4,177	281,080	5,960	0
3	5/16/2018	91	7,276	5,865	4,504	281,000	4,670	0
4	5/17/2018	88	6,883	4,993	4,615	278,460	4,974	0
5	5/17/2018	88	7,246	5,889	4,429	279,630	5,349	0
6	5/17/2018	91	7,296	7,625	4,794	279,560	4,332	0
7	5/18/2018	90	7,369	5,996	4,430	280,860	4,728	0
8	5/18/2018	90	7,627	5,396	4,346	280,420	4,401	0
9	5/19/2018	89	7,358	5,398	4,469	281,340	4,267	0
10	5/19/2018	89	7,660	5,530	4,457	281,080	4,680	0
11	5/19/2018	88	7,391	6,066	4,503	280,250	4,703	0
12	5/20/2018	86	7,343	5,301	4,518	282,720	4,133	0
13	5/20/2018	89	7,260	6,207	4,457	280,330	4,545	0
14	5/20/2018	88	7,216	5,968	4,510	280,940	4,605	0
15	5/21/2018	86	7,001	5,834	4,538	279,900	4,746	0
16	5/21/2018	88	7,267	5,931	4,677	280,710	4,960	0
17	5/21/2018	88	7,293	8,354	4,171	280,050	4,632	0
18	5/22/2018	87	7,261	8,243	4,337	280,130	3,954	0
19	5/22/2018	90	7,139	5,981	4,630	280,220	4,158	0
20	5/23/2018	90	6,999	5,856	4,433	279,990	4,503	0
21	5/23/2018	87	7,269	5,913	4,483	280,050	4,018	0
22	5/24/2018	87	7,472	6,130	4,386	279,950	3,912	0
23	5/24/2018	87	6,864	6,342	4,523	280,200	4,176	0
24	5/24/2018	88	7,379	5,207	4,911	279,890	4,002	0
25	5/25/2018	88	6,955	5,566	4,706	280,420	3,870	0
26	5/25/2018	87	6,862	6,040	4,799	279,040	3,847	0
27	5/25/2018	86	7,312	5,709	4,470	280,330	3,881	0
28	5/26/2018	86	7,424	5,901	4,881	280,370	3,767	0
29	5/26/2018	87	6,664	5,529	4,389	280,760	3,767	0
30	5/27/2018	86.5	7,033	5,547	4,872	279,970	3,744	0
31	5/27/2018	85.7	6,778	6,479	4,863	280,090	3,629	0
32	5/27/2018	87	6,954	6,349	4,752	280,540	3,593	0
33	5/27/2018	86.4	6,801	5,418	4,901	280,060	3,654	0
34	5/28/2018	88.2	7,227	5,280	4,625	280,190	3,644	0
35	5/28/2018	86.6	7,092	5,746	4,661	281,080	3,550	0
36	5/28/2018	87.1	6,786	5,598	4,679	279,610	3,577	0
37	5/29/2018	90.2	7,267	5,648	4,457	281,760	3,595	0
38	5/29/2018	88.1	6,493	6,146	4,695	280,450	3,519	0
39	5/29/2018	69.7	6,977	6,019	4,646	280,600	3,499	0
40	5/29/2018	89.3	6,925	6,012	4,778	280,570	3,305	0
41	5/29/2018	87.6	6,774	5,553	4,633	280,840	3,503	0
42	5/30/2018	86.8	6,852	5,698	4,922	281,150	3,574	0
43	5/30/2018	89.1	6,755	6,275	4,841	280,780	3,756	0
44	5/31/2018	89.5	6,928	5,755	4,779	280,600	3,564	0
45	5/31/2018	87.8	7,104	6,359	4,482	280,420	3,554	0
46	5/31/2018	87.3	6,995	6,290	4,950	280,410	3,508	0
47	5/31/2018	89.5	6,385	5,626	4,078	280,170	3,493	0
48	5/31/2018	89.6	6,522	5,670	5,069	281,110	3,478	0
49	6/1/2018	89.8	6,451	5,985	4,750	281,520	3,485	0
50	6/1/2018	90.6	6,565	5,761	4,516	281,030	3,809	0
51	6/1/2018	88	6,907	7,536	4,988	281,030	3,313	0
52	6/1/2018	91.1	6,490	5,715	4,422	280,600	3,292	0
53	6/1/2018	85.8	8,174	5,693	4,599	279,400	3,759	0

THOMAS PARKINSON BRK 1H
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	88.9	6,276	5,990	5,091	279,200	3,408	0
55	6/2/2018	88.9	6,602	6,004	4,935	280,060	3,403	0
56	6/2/2018	88.1	6,424	6,190	4,925	280,210	3,330	0
57	6/2/2018	91.2	6,088	4,711	4,663	281,160	3,235	0
58	6/2/2018	93.5	6,323	6,007	4,450	281,800	3,154	0
59	6/2/2018	89.4	6,235	5,465	4,459	281,420	3,122	0
60	6/2/2018	89	6,224	6,137	5,020	281,150	3,355	0
61	6/2/2018	90.7	6,198	5,801	4,128	281,190	3,300	0
62	6/3/2018	87.9	6,281	5,857	4,700	272,550	3,299	0

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Well Name:

Thomas Parkinson BRK 1H

47009002340000

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)	5563.00	5530.00	5718.00	5677.00	
Cashaqua (shale)	5718.00	5677.00	5779.00	5734.00	
Middlesex (shale)	5779.00	5734.00	5856.00	5799.00	
Burket (shale)	5856.00	5799.00	5872.00	5813.00	
Tully (ls)	5872.00	5813.00	5942.00	5865.00	
Mahantango (shale)	5942.00	5865.00	6183.00	5987.00	
Marcellus (shale)	6183.00	5987.00	NA	NA	GAS

RECEIVED
 Office of Oil and Gas
 OCT - 9 2018
 WV Department of
 Environmental Protection

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC		WELL (FARM) NAME: THOMAS PARKINSON BRK		WELL #	1H	SERIAL #	XXXX
ADDRESS: P.O. BOX 1300 JANE LEW, WV 26378		COUNTY: BROOKE	CODE: 009	DISTRICT: BUFFALO			
SURFACE OWNER: BETHANY COLLEGE		USGS 7 1/2 QUADRANGLE MAP NAME: BETHANY, WV					

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. THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
 2. ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

LEGEND:

- FLOOD PLAN
- ASPIRILLED PATH
- PROPOSED PATH
- LEASE BOUNDARY
- PUBLIC ROAD
- ACCESS ROAD
- NATURAL WATERWAY
- PROPOSED SURFACE HOLE / BOTTOM HOLE
- EXISTING / PRODUCING WELLS
- L.P.L. LANDING POINT LOCATION



SURFACE HOLE LOCATION (SHL): GEOGRAPHIC (NAD83): LATITUDE: 40.212773 LONGITUDE: -80.564120	BOTTOM HOLE LOCATION (BHL): GEOGRAPHIC (NAD83): LATITUDE: 40.234974 LONGITUDE: -80.575373
---	--

GRID NORTH
 UTM, NAD83 DATUM, ZONE 17, US FT

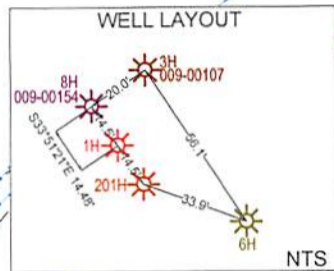
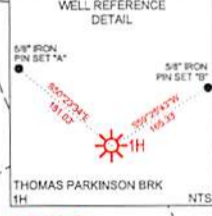
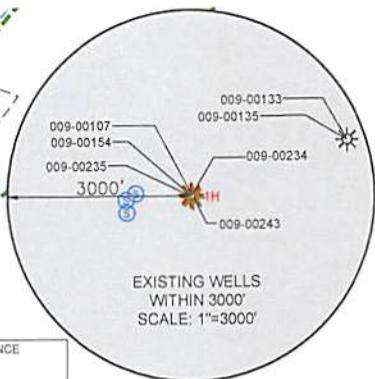
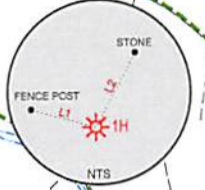
JHA ENGINEERS SURVEYORS
 ENVIRONMENTAL GIS MAPPING
 www.jhacompanies.com
 68011 Vineyard Road
 St. Clairsville, Ohio 43950
 740-695-6100

LATITUDE: 40°15'00" SURFACE HOLE ← 6273'

LATITUDE: 40°15'00" BOTTOM HOLE ← 9412'

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

LINE	BEARING	DISTANCE
L1	S75°39'30"E	945.14'
L2	S29°07'23"W	1811.39'



SURFACE HOLE LOCATION (SHL):	
UTM (NAD83, ZONE 17, METERS):	NORTHING: 4451492.32
	EASTING: 537084.44
LANDING POINT LOCATION (LPL):	
UTM (NAD83, ZONE 17, METERS):	NORTHING: 4451473.20
	EASTING: 536976.13
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	NORTHING: 4453940.26
	EASTING: 536122.10

- 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 625 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: 4451464.47
	EASTING: 537090.91
LANDING POINT LOCATION (LPL):	
UTM (NAD83, ZONE 17, METERS):	NORTHING: 4451467.69
	EASTING: 536980.08
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	NORTHING: 4453924.04
	EASTING: 536121.52

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

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SURVEY SOURCE OF ELEVATION: GRADE GPS (NAVD 88, US FT)

THOMAS PARKINSON BRK
OPERATOR'S WELL #: 1H
API WELL #: 47 009 00234
STATE COUNTY PERMIT

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

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1,160.4'

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: 6,010' TVD 14,950.0' TMD

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

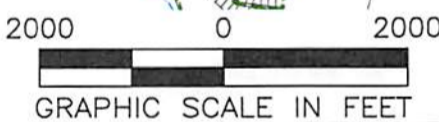
LEGEND:

PROPOSED SURFACE HOLE / BOTTOM HOLE	PUBLIC ROAD
EXISTING / PRODUCING WELLHEAD	NATURAL WATERWAY
LPL LANDING POINT LOCATION	SURVEYED BOUNDARY
EXISTING WATER WELL	LEASE BOUNDARY
EXISTING SPRING	AS-DRILLED PATH
	PROPOSED PATH

REVISIONS:	DATE: 09-28-2018
	DRAWN BY: D. REED
	SCALE: 1" = 2000'
	DRAWING NO: 2018-675
	WELL LOCATION PLAT

RECEIVED
Office of Oil and Gas
OCT - 9 2018
WV Department of Environmental Protection

GRID NORTH
UTM, NAD83 DATUM, ZONE 17, US FT
5478'
LONGITUDE: 80°32'30" BOTTOM HOLE
13567'
LONGITUDE: 80°32'30" SURFACE HOLE




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	STARVAGGI INDUSTRIES, INC	03-B37-0053.0000
4	JOHN H., JR. & STEPHANIE PROELLOCHS; KEVIN & JODIE RAY	03-B38-0007.0000
5	JOHN H. PROELLOCHS, JR.	03-B38-0007.0001
6	KEVIN & JODIE RAY	03-B38-0006.0000
7	RICARDO PACHECO, A SINGLE MAN	03-B33-0068.0001
8	WV DOT, DIVISION OF HIGHWAYS	MCADOO RIDGE RD
9	DEBRA KAY PELAEZ	03-B33-0071.0000

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	STARVAGGI INDUSTRIES, INC.	03-B33-0054.0000
B	MELVIN E. PELUCHETTE	03-B33-0053.0000
C	MICHAEL JAMES & JENNIFER LYNN YANO	03-B33-0043.0000
D	KEVIN P. & GERRI L. KOPKO	03-B33-0043.0001
E	BRIAN P. & PATRICIA A. SANDRIDGE	03-B33-0074.0000
F	ALBERT ROBERT STRICKLER	03-B33-0072.0000
G	KEVIN & JODY RAY	03-B33-0073.0000
H	SCOTT A., III & LINDSEY LAW	03-B38-0058.0000
I	SCOTT A., III & LINDSEY LAW	03-B38-0003.0000
J	NORMAN K. BOWMAN	03-B38-0004.0000
K	JOHN H., SR. & NANCY J. PROELLOCHS	03-B38-0007.0002
L	ALAN L. & BETH B. KLEIN	03-B38-0008.0000
M	ALAN L. & BETH B. KLEIN	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	JEFFREY W. HENSLER	03-B38-0028.0000
Q	JEFFREY W. HENSLER	03-B38-0027.0001
R	CHARLES F. & DONNA BROWN	03-B38-0030.0000
S	KIMBERLY CARMAN WORTHLEY	03-B38-0027.0000
T	KIMBERLY CARMAN WORTHLEY	03-B38-0025.0000
U	MARK W. OWEN & VIRGINIA BEALL KRUEZ	03-B38-0024.0000
V	GENE CHARLES VALENTINE TRUST	03-B43-0028.0000
W	RICHARD FRANCIS CORBY	03-B43-0027.0000
X	JAMES & KATHLEEN KEEGAN	02-B43C-0037.0000
Y	BARBARA L. CHAMBERS	02-B43C-0036.0000
Z	BETHANY COLLEGE	02-B43C-0003.0000
AA	BETHANY COLLEGE	02-B43C-0002.0000
AB	BETHANY COLLEGE	02-B43C-0001.0000
AC	BETHANY COLLEGE	01-B43B-0026.0000
AD	TRAVIS G. & GREGORY B. STRAUB	02-B43F-0084.0000
AE	GEORGE SONNEWALD, JR.	02-B43F-0082.0000
AF	GEORGE SONNEWALD, JR.	02-B43F-0081.0000
AG	WILLIAM MITCHELL HEIRS	02-B43B-0022.0000
AH	MITCHELL DONALD STEVEN	02-B43F-0083.0000
AI	JOHN HUFF HEIRS	02-B43B-0004.0000
AJ	DANNY M. & SANDRA L. HOLLADAY	03-B43-0003.0000
AK	DENNIS & DERRELLE RUSCHELL	03-B43-0002.0000
AL	DENNIS & DERRELLE RUSCHELL	03-B43-0001.0000
AM	RUTH GERMON, JEFFREY WOY, SUE MOORE, PATRICIA WEST & SARA WOY	03-B38-0037.0000
AN	DAVID G. OWENS & LINDA WALTERS	03-B38-0035.0000
AO	DAVID G. OWENS & LINDA WALTERS	03-B38-0033.0000
AP	DAVID G. OWENS & LINDA WALTERS	03-B38-0032.0000
AQ	ALLEN JOHNSON & CHARLES WARREN, ET AL	03-B38-0036.0000
AR	MELVIN E. PELUCHETTE	03-B37-0063.0000
AS	JOHN E. & SHERRILL J. RIPLEY	03-B37-0062.0000
AT	MARLIN G., SR. & JOY H. CRAWFORD	03-B37-0053.0002
AU	MARLIN G., SR. & JOY H. CRAWFORD	03-B37-0055.0000
AV	LAWRENCE PAUL SMITH, SR.	03-B37-0054.0000
AW	WILLIAM E. & HAZEL E. JOHNSTON	03-B37-0053.0001
AX	CLEO KLAGES	03-B37-0052.0000
AY	RICHARD ROGERS, CHERI SHARP, EDWARD O'DYER & ET AL	03-B37-0048.0000
AZ	MARSH LIVING TRUST	03-B32-0118.0000
BA	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	03-B38-0001.0000
BB	MARY JANE JACKSON	03-B33-0060.0000
BC	TODD H. & SHARON E. JACKSON	03-B33-0065.0000
BD	TYLER N. BROWN	03-B33-0067.0000
BE	LAWRENCE PAUL SMITH, SR. & PATRICIA SHERON	03-B33-0070.0000
BF	GREG & REGINA ZOLMAN	03-B33-0069.0000

RECEIVED
Office of Oil and Gas
OCT - 9 2018
WV Department of
Environmental Protection

REVISIONS:

COMPANY:					
OPERATOR'S		THOMAS PARKINSON BRK		DATE: 09-28-2018	
WELL #:		1H		DRAWN BY: D. REED	
DISTRICT:		COUNTY:		SCALE: N/A	
BUFFALO		BROOKE		DRAWING NO: 2018-675	
		STATE:		WELL LOCATION PLAT	
		WV			

COMPLETION ID 2501166558
PAD ID 3001156582

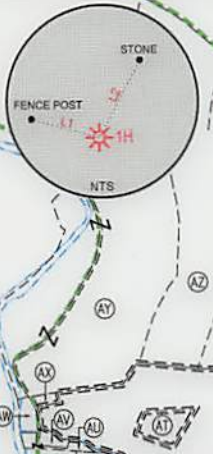
LATITUDE: 40°15'00" SURFACE HOLE ← 6273'

LATITUDE: 40°15'00" BOTTOM HOLE ← 9412'



www.jhacompanies.com
68011 Vineyard Road
St. Clairsville, Ohio 43950
740-695-6100

LINE	BEARING	DISTANCE
L1	S75°39'30"E	945.14'
L2	S29°07'23"W	1811.39'



SURFACE HOLE LOCATION (SHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4451492.32	
EASTING: 537084.44	
LANDING POINT LOCATION (LPL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4451473.20	
EASTING: 536976.13	
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4453940.26	
EASTING: 536122.10	

- NOTES ON SURVEY**
- COORDINATE SYSTEM IS UTM NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
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 - 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.
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SURFACE HOLE LOCATION (SHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4451464.47	
EASTING: 537090.91	
LANDING POINT LOCATION (LPL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4451467.69	
EASTING: 536980.08	
BOTTOM HOLE LOCATION (BHL):	
UTM (NAD83, ZONE 17, METERS):	
NORTHING: 4453924.04	
EASTING: 536121.52	

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.

P.S. 2041



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)

COMPANY: **SWN** Production Company, LLC

THOMAS PARKINSON BRK
OPERATOR'S WELL #: 1H
API WELL #: 47 009 00234
STATE COUNTY PERMIT

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

WATERSHED: UPPER OHIO SOUTH
DISTRICT: BUFFALO COUNTY: BROOKE
SURFACE OWNER: BETHANY COLLEGE
OIL & GAS ROYALTY OWNER: BETHANY COLLEGE, A CORPORATION, F/A THE TRUSTEES OF BETHANY COLLEGE, F/A THE TRUSTEES OF BETHANY COLLEGE, A CORPORATION

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: 6,010' TVD 14,950.0' 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 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
---	---

GRID NORTH
UTM, NAD83 DATUM, ZONE 17, US FT

LONGITUDE: 80°32'30" BOTTOM HOLE

LONGITUDE: 80°32'30" SURFACE HOLE



COMPANY: **SWN** Production Company, LLC

THOMAS PARKINSON BRK
OPERATOR'S WELL #: 1H
API WELL #: 47 009 00234
STATE COUNTY PERMIT

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

WATERSHED: UPPER OHIO SOUTH
DISTRICT: BUFFALO COUNTY: BROOKE
SURFACE OWNER: BETHANY COLLEGE
OIL & GAS ROYALTY OWNER: BETHANY COLLEGE, A CORPORATION, F/A THE TRUSTEES OF BETHANY COLLEGE, F/A THE TRUSTEES OF BETHANY COLLEGE, A CORPORATION

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: 6,010' TVD 14,950.0' 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 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
---	---

JHA
SURVEYORS
ENGINEERS
GIS MAPPING
www.jhacompany.com
6801 Vineyard Road
St. Clairsville, Ohio 43980
740-888-6100

LINE	BEARING	DISTANCE
L1	S73°20'07"	842.14'
L2	S25°02'37"W	1817.38'



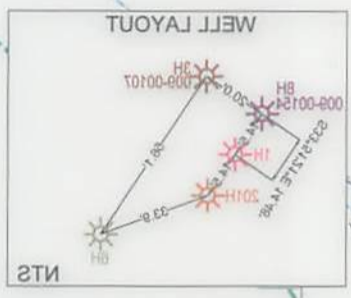
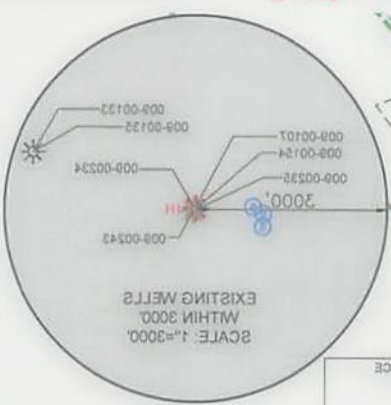
SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): EASTING: 573084.44 NORTHING: 4451482.32
LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): EASTING: 578878.17 NORTHING: 4451472.20
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): EASTING: 578122.10 NORTHING: 4453840.28

NOTES ON SURVEY:

1. COORDINATE SYSTEM IS UTM AND 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
2. 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.
3. THIS PLAN DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
4. NO DWELLINGS OR BUILDINGS WITHIN 852 FEET OF PROPOSED CENTER OF P.W.
5. NO PERMANENT STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
6. NO NATURALLY PRODUCING TROUT STREAM WITHIN 200 FEET OF THE LIMITS OF DISTURBANCE.
7. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
8. THIS AS-DRILLED PLAN IS PREPARED FROM THE FINAL WELL PLAT PREPARED BY ANOTHER CONSULTANT AND THE DRILLING INFORMATION IS PROVIDED TO THIS

SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): EASTING: 573090.91 NORTHING: 4451484.47
LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): EASTING: 578880.08 NORTHING: 4451487.89
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): EASTING: 578121.25 NORTHING: 4452824.04

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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.



swm Production Company, LLC
COMPANY: swm
GRAPHIC SCALE IN FEET

WELL OPERATOR: SWM 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

DATE: 09-28-2018
DRAWN BY: D. REED
SCALE: 1" = 2000
DRAWING NO: 2018-625
WELL LOCATION PLAN

REVISIONS:

WV DEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25034

UNITED STATES TOPOGRAPHIC MAPS
ACCURACY: 1/300
MINIMUM DEGREE OF ACCURACY: 1/300

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

WATERSHED: UPPER OHIO SOUTH
DISTRICT: BUFFALO
COUNTY: BROOKE

SURFACE OWNER: BETHANY COLLEGE
OIL & GAS ROYALTY OWNER: BETHANY COLLEGE (BY THE TRUSTEES OF BETHANY COLLEGE A CORPORATION)

ACREAGE: ±832.28
QUADRANGLE: BETHANY, WV
ELEVATION: 1180.4'

CONVERT PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) AS-DRILLED
 DRILL DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION

TARGET FORMATION: MARCELLUS
ESTIMATED DEPTH: 6010' TVD 14950.0' TMD

WELL OPERATOR: SWM 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

DATE: 09-28-2018
DRAWN BY: D. REED
SCALE: 1" = 2000
DRAWING NO: 2018-625
WELL LOCATION PLAN

LEGEND:
 ○ PROPOSED SURFACE HOLE \ BOTTOM HOLE
 * EXISTING \ PRODUCING WELLS
 L.P.L. LANDING POINT LOCATION
 ● EXISTING WATER WELL
 ● EXISTING SPRING
 --- PROPOSED PATH
 --- ADRIILLED PATH
 --- LEASE BOUNDARY
 --- SURVEYED BOUNDARY
 --- NATURAL WATERWAY
 --- PUBLIC ROAD

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	STARVAGGI INDUSTRIES, INC	03-B37-0053.0000
4	JOHN H., JR. & STEPHANIE PROELLOCHS; KEVIN & JODIE RAY	03-B38-0007.0000
5	JOHN H. PROELLOCHS, JR.	03-B38-0007.0001
6	KEVIN & JODIE RAY	03-B38-0006.0000
7	RICARDO PACHECO, A SINGLE MAN	03-B33-0068.0001
8	WV DOT, DIVISION OF HIGHWAYS	MCADDOO RIDGE RD
9	DEBRA KAY PELAEZ	03-B33-0071.0000

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	STARVAGGI INDUSTRIES, INC.	03-B33-0054.0000
B	MELVIN E. PELUCHETTE	03-B33-0053.0000
C	MICHAEL JAMES & JENNIFER LYNN YANO	03-B33-0043.0000
D	KEVIN P. & GERRI L. KOPKO	03-B33-0043.0001
E	BRIAN P. & PATRICIA A. SANDRIDGE	03-B33-0074.0000
F	ALBERT ROBERT STRICKLER	03-B33-0072.0000
G	KEVIN & JODY RAY	03-B33-0073.0000
H	SCOTT A., III & LINDSEY LAW	03-B38-0058.0000
I	SCOTT A., III & LINDSEY LAW	03-B38-0003.0000
J	NORMAN K. BOWMAN	03-B38-0004.0000
K	JOHN H., SR. & NANCY J. PROELLOCHS	03-B38-0007.0002
L	ALAN L. & BETH B. KLEIN	03-B38-0008.0000
M	ALAN L. & BETH B. KLEIN	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	JEFFREY W. HENSLE	03-B38-0028.0000
Q	JEFFREY W. HENSLE	03-B38-0027.0001
R	CHARLES F. & DONNA BROWN	03-B38-0030.0000
S	KIMBERLY CARMAN WORTHLEY	03-B38-0027.0000
T	KIMBERLY CARMAN WORTHLEY	03-B38-0025.0000
U	MARK W. OWEN & VIRGINIA BEALL KRUEZ	03-B38-0024.0000
V	GENE CHARLES VALENTINE TRUST	03-B43-0028.0000
W	RICHARD FRANCIS GORBY	03-B43-0027.0000
X	JAMES & KATHLEEN KEEGAN	02-B43C-0037.0000
Y	BARBARA L. CHAMBERS	02-B43C-0036.0000
Z	BETHANY COLLEGE	02-B43C-0003.0000
AA	BETHANY COLLEGE	02-B43C-0002.0000
AB	BETHANY COLLEGE	02-B43C-0001.0000
AC	BETHANY COLLEGE	01-B43B-0026.0000
AD	TRAVIS G. & GREGORY B. STRAUB	02-B43F-0084.0000
AE	GEORGE SONNEWALD, JR.	02-B43F-0082.0000
AF	GEORGE SONNEWALD, JR.	02-B43F-0081.0000
AG	WILLIAM MITCHELL HEIRS	02-B43B-0022.0000
AH	MITCHELL DONALD STEVEN	02-B43F-0083.0000
AI	JOHN HUFF HEIRS	02-B43B-0004.0000
AJ	DANNY M. & SANDRA L. HOLLADAY	03-B43-0003.0000
AK	DENNIS & DERRELLE RUSCHELL	03-B43-0002.0000
AL	DENNIS & DERRELLE RUSCHELL	03-B43-0001.0000
AM	RUTH GERMON, JEFFREY WOY, SUE MOORE, PATRICIA WEST & SARA WOY	03-B38-0037.0000
AN	DAVID G. OWENS & LINDA WALTERS	03-B38-0035.0000
AO	DAVID G. OWENS & LINDA WALTERS	03-B38-0033.0000
AP	DAVID G. OWENS & LINDA WALTERS	03-B38-0032.0000
AQ	ALLEN JOHNSON & CHARLES WARREN, ET AL	03-B38-0036.0000
AR	MELVIN E. PELUCHETTE	03-B37-0063.0000
AS	JOHN E. & SHERRILL J. RIPLEY	03-B37-0062.0000
AT	MARLIN G., SR. & JOY H. CRAWFORD	03-B37-0053.0002
AU	MARLIN G., SR. & JOY H. CRAWFORD	03-B37-0055.0000
AV	LAWRENCE PAUL SMITH, SR.	03-B37-0054.0000
AW	WILLIAM E. & HAZEL E. JOHNSTON	03-B37-0053.0001
AX	CLEO KLAGES	03-B37-0052.0000
AY	RICHARD ROGERS, CHERI SHARP, EDWARD O'DYER & ET AL	03-B37-0048.0000
AZ	MARSH LIVING TRUST	03-B32-0118.0000
BA	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	03-B38-0001.0000
BB	MARY JANE JACKSON	03-B33-0060.0000
BC	TODD H. & SHARON E. JACKSON	03-B33-0065.0000
BD	TYLER N. BROWN	03-B33-0067.0000
BE	LAWRENCE PAUL SMITH, SR. & PATRICIA SHERON	03-B33-0070.0000
BF	GREG & REGINA ZOLMAN	03-B33-0069.0000

REVISIONS:	 	
	COMPANY:	
	OPERATOR'S	THOMAS PARKINSON BRK
	WELL #:	1H
	DISTRICT:	BUFFALO
	COUNTY:	BROOKE
	STATE:	WV
	DATE:	09-28-2018
	DRAWN BY:	D. REED
	SCALE:	N/A
	DRAWING NO:	2018-675
	WELL LOCATION PLAT	

WELL #:	TH
DISTRICT:	BROOK
COUNTY:	WV
STATE:	WV
OPERATOR'S:	THOMAS PARKINSON BRK
COMPANY:	Production Company, LLC



REVISIONS:	

TRACT	SURFACE OWNER	TAX PARCEL
BF	GREG & REGINA ZOLMAN	03-873-0088.0000
BE	LAWRENCE PAUL SMITH, SR. & PATRICIA SHERON	03-873-0070.0000
BD	TYLER N. BROWN	03-873-0087.0000
BC	TODD H. & SHARON E. JACKSON	03-873-0085.0000
BB	MARY JANE JACKSON	03-873-0080.0000
BA	JOHN PRATHER GOOD, JR. IRREVOCABLE TRUST	03-873-0001.0000
AZ	MARSH LIVING TRUST	03-873-0118.0000
AY	RICHARD ROGERS, CHERI SHARP, EDWARD O'YER & ET AL	03-873-0048.0000
AX	CLEO KLAGES	03-873-0052.0000
AW	WILLIAM E. & HAZEL E. JOHNSTON	03-873-0053.0001
AV	LAWRENCE PAUL SMITH, SR.	03-873-0054.0000
AU	MARLIN G. SR. & JOY H. CRAWFORD	03-873-0055.0000
AT	MARLIN G. SR. & JOY H. CRAWFORD	03-873-0052.0002
AS	JOHN E. & SHERILL J. RIPLEY	03-873-0082.0000
AR	MELVIN E. PELUCHETTE	03-873-0087.0000
AQ	ALLEN JOHNSON & CHARLES WARREN, ET AL	03-873-0038.0000
AP	DAVID G. OWENS & LINDA WALTERS	03-873-0072.0000
AO	DAVID G. OWENS & LINDA WALTERS	03-873-0073.0000
AN	DAVID G. OWENS & LINDA WALTERS	03-873-0072.0000
AM	RUTH GERMON, JEFFREY WOY, SUE MOORE, PATRICIA WEST & SARA WOY	03-873-0072.0000
AL	DENNIS & DERRELLE RUSCHELL	03-873-0001.0000
AK	DENNIS & DERRELLE RUSCHELL	03-873-0002.0000
AJ	DANNY M. & SANDRA J. HOLLADAY	03-873-0003.0000
AI	JOHN HUFF HEIRS	03-873-0004.0000
AH	MITCHELL DONALD STEVEN	03-873-0083.0000
AG	WILLIAM MITCHELL HEIRS	03-873-0052.0000
AF	GEORGE SONNEWALD, JR.	03-873-0081.0000
AE	GEORGE SONNEWALD, JR.	03-873-0082.0000
AD	TRAVIS G. & GREGORY B. STRAUB	03-873-0084.0000
AC	BETHANY COLLEGE	03-873-0028.0000
AB	BETHANY COLLEGE	03-873-0001.0000
AA	BETHANY COLLEGE	03-873-0002.0000
AZ	BETHANY COLLEGE	03-873-0003.0000
Y	BARBARA J. CHAMBERS	03-873-0038.0000
X	JAMES & KATHLEEN KEGAN	03-873-0072.0000
W	RICHARD FRANCIS CORBY	03-873-0072.0000
V	GENE CHARLES VALENTINE TRUST	03-873-0028.0000
U	MARK W. OWEN & VIRGINIA BEALL KRUTZ	03-873-0024.0000
T	KIMBERLY CARMAN WORTHLEY	03-873-0022.0000
S	KIMBERLY CARMAN WORTHLEY	03-873-0022.0000
R	CHARLES F. & DONNA BROWN	03-873-0070.0000
Q	JEFFREY W. HENSLEER	03-873-0027.0001
P	JEFFREY W. HENSLEER	03-873-0028.0000
O	MARK A. & GEORGINA M. FEDAK	03-873-0014.0000
N	JOHN H. JR. & STEPHANIE PROELLOCHS; KEVIN & JODY RAY	03-873-0012.0000
M	ALAN J. & BETH B. KLEIN	03-873-0008.0001
L	ALAN J. & BETH B. KLEIN	03-873-0008.0000
K	JOHN H., SR. & NANCY J. PROELLOCHS	03-873-0007.0002
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H	SCOTT A., III & LINDSEY LAW	03-873-0028.0000
G	KEVIN & JODY RAY	03-873-0072.0000
F	ALBERT ROBERT STRICKLER	03-873-0072.0000
E	BRIAN P. & PATRICIA A. SANDRIDGE	03-873-0074.0000
D	KEVIN P. & GERRI L. KOPKO	03-873-0042.0001
C	MICHAEL JAMES & JENNIFER LYNN YANO	03-873-0043.0000
B	MELVIN E. PELUCHETTE	03-873-0022.0000
A	STARVAGGI INDUSTRIES, INC.	03-873-0024.0000

TRACT	SURFACE OWNER	TAX PARCEL
9	DEBRA KAY PELAEZ	03-873-0071.0000
8	WV DOT, DIVISION OF HIGHWAYS	MCADOO RIDGE RD
7	RICARDO PACHECO, A SINGLE MAN	03-873-0088.0001
6	KEVIN & JODIE RAY	03-873-0008.0000
5	JOHN H. PROELLOCHS, JR.	03-873-0007.0001
4	JOHN H. JR. & STEPHANIE PROELLOCHS; KEVIN & JODIE RAY	03-873-0007.0000
3	STARVAGGI INDUSTRIES, INC	03-873-0022.0000
2	WV DOT, DIVISION OF HIGHWAYS	BEALL'S RIDGE RD
1	BETHANY COLLEGE, A CORPORATION (R) TRUSTEES OF BETHANY COLLEGE, FKA THE TRUSTEES OF BETHANY COLLEGE, A CORPORATION, FKA THE TRUSTEES OF BETHANY COLLEGE, A CORPORATION (R)	03-873-0021.0000

ADJOINING OWNERS TABLE

WELL BORE TABLE FOR SURFACE \ ROYALTY OWNERS