

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

API 47-009-00185 County BROOKE District BUFFALO  
Quad BETHANY Pad Name THURMAN SPEECE BRK PAD Field/Pool Name PANHANDLE FIELD WET  
Farm name THURMAN SPEECE, JR. & GOLDIE N. STANLEY Well Number THURMAN SPEECE BRK 5H  
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 4,448,887.111 Easting 534,889.359  
Landing Point of Curve Northing 4,449,273.046 Easting 535,069.137  
Bottom Hole Northing 4,452,088.862 Easting 533,917.878

Elevation (ft) 1139.5 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 2/17/2017 Date drilling commenced 7/25/2017 Date drilling ceased 10/30/2017  
Date completion activities began 2/10/2018 Date completion activities ceased 4/18/2018  
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 264 Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft 475 Void(s) encountered (Y/N) depths \_\_\_\_\_  
Coal depth(s) ft 320 Cavern(s) encountered (Y/N) depths \_\_\_\_\_  
Is coal being mined in area (Y/N) N

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Reviewed  
*[Signature]* 6/11/18

Reviewed by:  
*[Signature]*  
07/20/2018

API 47-009 - 00185 Farm name THURMAN SPEECE, JR. & GOLDIE N. STANLEY Well number THURMAN SPEECE BRK 5H

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	411	NEW	J-55/54.50#	350.3', 308.2	Y, 20'
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	1717	NEW	J-55/36#		Y, 22'
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	16669	NEW	HCP-110/20#		Y
Tubing		2.375	6455	NEW	L-80/4.7#		N
Packer type and depth set							

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	GROUT TO SURFACE				SURFACE	24
Surface	CLASS A	374	15.60	1.20	448.8	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	660	15.60	1.18	778.8	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	3106	15.60	1.19	3696.14	SURFACE	24
Tubing							

Drillers TD (ft) 16669 Loggers TD (ft) 16669  
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5148

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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PRODUCING FORMATION(S)	DEPTHS	
MARCELLUS	5,948	TVD 6,427 MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump  
 SHUT-IN PRESSURE Surface 1303 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs  
 OPEN FLOW Gas 4697 mcfpd Oil 545 bpd NGL \_\_\_\_\_ bpd Water 636 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 <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
	SEE	ATTACHMENT	3		

Please insert additional pages as applicable.

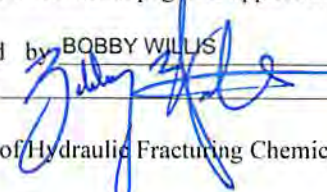
Drilling Contractor SWN DRILLING COMPANY  
 Address PO BOX 12359 City SPRING State TX Zip 77391-2359

Logging Company WEATHERFORD  
 Address 2000 St. James Place City Houston State TX Zip 77056

Cementing Company SCHLUMBERGER WELL SERVICES  
 Address 1080 US Hwy 33 East City Weston State WV Zip 26452

Stimulating Company US WELL SERVICES  
 Address 533 Industrial Park Dr. City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by BOBBY WILLIS Telephone 832-796-2884  
 Signature  Title REGULATORY ANALYST Date 5/30/2018

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

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/10/2018
Job End Date:	4/5/2018
State:	West Virginia
County:	Brooke
API Number:	47-009-00185-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Thurman Speece BRK 5H
Latitude:	40.18964700
Longitude:	-80.59013100
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	5,970
Total Base Water Volume (gal):	14,491,977
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	84.63209	
Sand	J.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	13.93761	
HCL Acid (12.6%-17.5%)	J.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.40000	1.10903	
			Hydrogen Chloride	7647-01-0	17.50000	0.25785	
WFRA-2000	J.S. Well Services, LLC	Friction Reducer	Water	7732-18-5	60.00000	0.02106	
			2-Propenoic acid, polymer with 2 propenamide	9003-06-9	30.00000	0.01053	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.00863	
BIOC11219A	Nalco Champion	Anti-Bacterial Agent	Methanol	64-17-5	60.00000	0.00896	
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00569	
			Glutaraldehyde	111-30-8	10.00000	0.00190	

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SCAL16486A	Nalco Champion	Scale Inhibitor					
			Ethylene Glycol	107-21-1	30.00000	0.00165	
			Amine Triphosphate	Proprietary	30.00000	0.00147	
LT FLUSH SYSTEM I	J.S. Well Services, LLC	Other					
			Mineral oil, petroleum distillates, hrdotreated light naphthenic	64742-53-6	100.00000	0.00251	
AI-303	J.S. Well Services, LLC	Acid Corrosion Inhibitors					
			Ethylene glycol	107-21-1	40.00000	0.00045	
			Cinnamaldehyde	104-55-2	20.00000	0.00016	
			Formic acid	64-18-6	20.00000	0.00016	
			Butyl cellosolve	111-76-2	20.00000	0.00014	
			Polyether	60828-78-6	10.00000	0.00008	
			Acetophenone, thiourea, formaldehyde polymer	68527-49-1	5.00000	0.00004	

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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**THURMAN SPEECE BRK 5H  
ATTACHMENT 1  
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	1/25/2018	16,467	16,544	33
2	2/10/2018	16,362	16,434	33
3	2/11/2018	16,257	16,329	33
4	2/12/2018	16,147	16,224	46
5	2/20/2018	16,047	16,119	33
6	2/20/2018	15,942	16,014	33
7	2/21/2018	15,837	15,909	33
8	2/21/2018	15,732	15,804	33
9	2/22/2018	15,627	15,699	33
10	2/22/2018	15,522	15,594	33
11	2/23/2018	15,417	15,489	33
12	2/23/2018	15,312	15,384	33
13	2/24/2018	15,207	15,279	33
14	2/24/2018	15,102	15,174	33
15	2/25/2018	14,997	15,069	33
16	2/25/2018	14,894	14,964	33
17	2/26/2018	14,787	14,859	33
18	2/26/2018	14,682	14,754	33
19	2/26/2018	14,577	14,649	33
20	2/26/2018	14,474	14,544	33
21	2/27/2018	14,367	14,439	33
22	2/27/2018	14,265	14,334	33
23	2/27/2018	14,157	14,229	33
24	2/27/2018	14,052	14,124	33
25	2/27/2018	13,947	14,019	33
26	2/28/2018	13,837	13,914	33
27	2/28/2018	13,737	13,809	33
28	2/28/2018	13,630	13,704	33
29	2/28/2018	13,527	13,601	33
30	2/28/2018	13,421	13,494	33
31	2/28/2018	13,317	13,391	33
32	3/1/2018	13,211	13,284	33
33	3/1/2018	13,107	13,182	33
34	3/1/2018	13,002	13,074	33
35	3/2/2018	12,897	12,972	33
36	3/2/2018	12,792	12,864	33
37	3/2/2018	12,687	12,762	33
38	3/2/2018	12,582	12,654	33
39	3/19/2018	12,477	12,544	33
40	3/20/2018	12,372	12,444	33
41	3/20/2018	12,267	12,335	33
42	3/21/2018	12,162	12,234	33
43	3/21/2018	12,057	12,125	33

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STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
44	3/21/2018	11,952	12,024	33
45	3/21/2018	11,847	11,917	33
46	3/22/2018	11,742	11,814	33
47	3/22/2018	11,637	11,709	33
48	3/22/2018	11,532	11,602	33
49	3/22/2018	11,427	11,499	33
50	3/24/2018	11,322	11,392	33
51	3/24/2018	11,217	11,289	33
52	3/26/2018	11,112	11,184	33
53	3/26/2018	11,007	11,079	33
54	3/26/2018	10,902	10,974	33
55	3/27/2018	10,797	10,869	33
56	3/27/2018	10,692	10,764	33
57	3/27/2018	10,587	10,659	33
58	3/27/2018	10,482	10,554	33
59	3/28/2018	10,377	10,449	33
60	3/28/2018	10,272	10,344	33
61	3/29/2018	10,167	10,239	33
62	3/29/2018	10,062	10,134	33
63	3/29/2018	9,957	10,029	33
64	3/29/2018	9,852	9,924	33
65	3/29/2018	9,747	9,819	33

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THURMAN SPEECE BRK 5H  
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	2/10/2018	80	8,275	8,909	3,677	210,000	4,119	
2	2/11/2018	48	8,600	9,168	4,130	11,500	5,578	
3	2/11/2018	84	8,042	8,434	3,936	319,050	5,434	
4	2/20/2018	89	7,666	8,133	4,588	208,960	5,129	
5	2/20/2018	83	8,098	9,019	4,604	211,330	4,215	
6	2/20/2018	87	7,999	8,991	4,434	212,380	4,092	
7	2/21/2018	84	8,160	9,048	4,510	211,500	4,181	
8	2/22/2018	82	8,250	9,063	4,313	209,160	4,240	
9	2/22/2018	81	8,026	8,689	4,717	206,850	4,157	
10	2/22/2018	80	7,931	8,403	4,511	211,600	4,172	
11	2/23/2018	83	8,098	8,482	4,736	210,300	4,115	
12	2/24/2018	82	8,143	8,606	4,635	210,890	4,137	
13	2/24/2018	86	8,060	8,396	4,400	210,700	4,117	
14	2/25/2018	87	8,044	8,915	4,417	210,040	4,158	
15	2/25/2018	80	7,970	8,580	4,472	209,700	4,063	
16	2/25/2018	78	8,146	8,914	4,340	210,380	3,926	
17	2/26/2018	77	8,422	8,880	4,263	212,020	4,136	
18	2/26/2018	84	7,903	8,710	4,526	210,600	4,126	
19	2/26/2018	8,604	7,850	8,226	4,535	217,965	4,078	
20	2/27/2018	85	7,650	8,184	4,301	210,400	4,139	
21	2/27/2018	86	7,786	8,114	4,451	210,150	4,124	
22	2/27/2018	86	7,890	8,390	4,579	210,120	4,013	
23	2/27/2018	87	7,763	8,089	4,527	211,990	4,017	
24	2/27/2018	83	7,635	8,259	4,386	210,525	4,104	
25	2/27/2018	83	7,908	8,820	4,360	209,800	4,195	
26	2/28/2018	74	8,154	8,984	4,312	209,750	4,055	
27	2/28/2018	85	7,957	8,574	4,484	211,140	4,054	
28	2/28/2018	82	8,025	8,555	4,436	211,250	3,941	
29	2/28/2018	85	7,853	8,261	4,508	211,290	3,998	
30	2/28/2018	76	8,155	8,987	4,207	210,280	3,970	
31	3/1/2018	75	6,951	7,838	4,301	210,300	4,035	
32	3/1/2018	86	7,707	8,275	4,303	209,660	3,976	
33	3/1/2018	73	7,933	8,883	4,326	210,050	3,947	
34	3/1/2018	67	8,171	9,165	4,103	210,225	4,053	
35	3/2/2018	85	7,548	8,003	4,446	210,320	3,961	
36	3/2/2018	82	8,220	8,652	4,273	209,680	3,916	
37	3/2/2018	86	8,006	8,449	4,525	210,250	3,865	
38	3/19/2018	86	7,660	8,749	4,453	212,620	4,253	
39	3/20/2018	84	7,926	9,041	4,421	211,320	4,177	
40	3/20/2018	87	7,633	8,892	4,525	209,800	3,919	
41	3/20/2018	85	7,545	8,368	4,552	210,430	4,189	
42	3/21/2018	89	7,476	8,884	4,455	209,725	4,122	
43	3/21/2018	77	8,234	8,963	4,393	210,400	3,934	
44	3/21/2018	84	7,889	8,787	4,566	210,220	3,863	
45	3/22/2018	87	7,406	8,395	4,402	208,960	3,914	
46	3/22/2018	82	7,750	8,855	4,472	120,100	3,758	
47	3/22/2018	82	7,086	7,755	4,465	209,875	3,739	
48	3/22/2018	83	7,064	7,617	4,362	210,425	3,748	
49	3/22/2018	85	7,151	7,633	4,506	209,950	3,823	
50	3/24/2018	87	7,425	8,468	4,778	210,770	3,579	
51	3/26/2018	87	7,353	7,886	4,516	209,030	3,476	
52	3/26/2018	87	7,572	8,257	4,492	210,200	3,449	
53	3/26/2018	85	7,560	8,751	4,532	210,175	3,378	

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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	3/27/2018	87	7,307	7,775	4,452	208,600	3,469	
55	3/27/2018	87	7,543	8,538	4,499	210,275	3,400	
56	3/27/2018	85	7,064	7,567	4,461	210,475	3,355	
57	3/27/2018	87	7,189	7,863	4,376	210,425	3,350	
58	3/27/2018	88	7,415	8,224	4,559	210,060	3,335	
59	3/28/2018	86	7,105	7,584	4,716	211,760	3,320	
60	3/29/2018	86	7,239	7,590	4,613	208,640	3,328	
61	3/29/2018	86	7,487	8,682	4,313	210,325	3,212	
62	3/29/2018	84	7,425	8,984	4,485	21,000	3,459	
63	3/29/2018	84	6,937	7,480	4,512	210,125	3,258	
64	3/29/2018	88	7,501	8,671	4,598	206,400	3,434	
65	3/30/2018	87	7,020	7,591	4,467	210,500	3,275	

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Well Name: Thurman Speece BRK 5H

47009001850000

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	264.00	264.00	
Top of Salt Water	475.00	475.00	NA	NA	
Pittsburgh Coal	320.00	320.00	401.00	401.00	
Pottsville (ss)	463.00	463.00	559.00	559.00	
Mauch Chunk (shale)	629.00	629.00	1220.00	1220.00	
Raven Cliff (ss)	838.00	838.00	1012.00	1012.00	
Maxton (ss)	1120.00	1120.00	1220.00	1220.00	
Greenbriar (ls)	1286.00	1286.00	1560.00	1557.00	
Big Injun (ss)	1560.00	1557.00	1636.00	1633.00	
Berea (siltstone)	NA	NA	NA	NA	
Rhinestreet (shale)	NA	NA	NA	NA	
Cashaqua (shale)	NA	NA	NA	NA	
Middlesex (shale)	5837.00	5726.00	5910.00	5769.00	
Burket (shale)	5910.00	5769.00	5934.00	5781.00	
Tully (ls)	5934.00	5781.00	6049.00	5836.00	
Mahantango (shale)	6049.00	5836.00	6427.00	5948.00	
Marcellus (shale)	6427.00	5948.00	NA	NA	Gas



# THRASHER

THE THRASHER GROUP, INC.  
600 WHITE OAKS BLVD.  
BRIDGEPORT, WV 26330  
PHONE 304-624-2108

### NOTES ON SURVEY

- COORDINATES 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 FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED OF CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- 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 LIMITS OF DISTURBANCE.

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

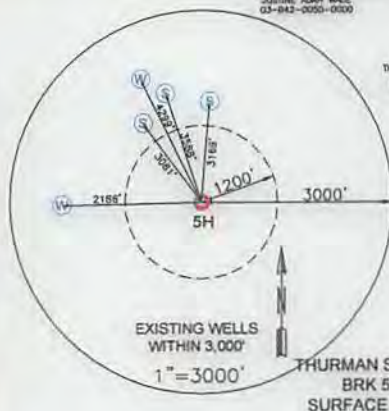
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
1	THURMAN O. SPEECE JR. & GOLDIE M. STANLEY	03-0842-0042-0000	115.23
2	THURMAN O. SPEECE JR. & GOLDIE M. STANLEY	P/O 03-0842-0046-0000	73.26
3	THURMAN O. SPEECE JR. & JASON SPEECE	03-0842-0046-0001	2.00
4	LABELL FARMS INC.	03-0842-0066-0000	349.88
5	ELLEN B. SANFORD	03-0837-0076-0000	66.00
6	LPS INVESTMENT PARTNERSHIP	03-0837-0066-0000	65.00
7	BRIAN K. & GINA W. HARTY	03-0837-0077-0000	45.75
8	BRIAN K. & GINA W. HARTY	03-0837-0077-0001	5.00
9	TERRENCE & SUSAN BONE	03-0837-0080-0000	2.58
10	ROBERT O. BONE	03-0837-0081-0000	81.99

BHL 5,092'

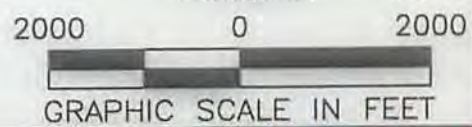
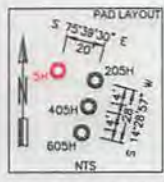
Longitude: 80°35'00"



ID	ADJOINER	TAX PARCEL
A	WILLIAM E. JOHNSTON & HAZEL E. JOHNSTON	03-837-0071-0000
B	BENJAMIN M. MOGA & CHRISTINE L. HEISE	03-837-0074-0000
C	BENJAMIN M. MOGA & CHRISTINE L. HEISE	03-837-0079-0000
D	WILLIAM A. SPERRINGER III & JONNA L. SPERRINGER	03-837-0078-0000
E	THEODORE W. BURNELL	03-837-0068-0000
F	LITHE KORN	03-837-0067-0000
G	WINDSOR POWER HOUSE COAL CO.	03-842-0048-0000
H	THURMAN O. SPEECE JR. & GOLDIE M. STANLEY	03-842-0047-0000
I	THURMAN O. SPEECE JR. & GOLDIE M. STANLEY	03-842-0045-0000
J	THURMAN O. SPEECE JR. & GOLDIE M. STANLEY	03-842-0044-0000
K	SANDRA & CARL CLARK	03-837-0085-0000
L	MICHAEL BRACKEL WOODKOR	03-837-0085-0000
M	KAREN TORREN WOOD	03-837-0084-0000
N	EDWARD EUGENE BRIDGER	03-837-0083-0000
O	VERNAIR HOME & GARDEN, LLC	03-837-0082-0000
P	RICHARD A. STANLEY JR.	03-842-0042-0001



<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,448,887.111 EASTING: 534,889.359
<b>LANDING POINT LOCATION (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,449,242.445 EASTING: 535,075.843
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,452,088.103 EASTING: 533,915.445
<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,448,887.111 EASTING: 534,889.359
<b>LANDING POINT LOCATION (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,449,273.046 EASTING: 535,069.137
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,452,088.862 EASTING: 533,917.878



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. 2270 *M.S. Wolf* 5/3/18

<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL &amp; GAS 601 57TH STREET CHARLESTON, WV 25034</p>	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)	COMPANY: <b>SWN</b> Production Company, LLC OPERATOR'S WELL #: THURMAN SPEECE BRK 5H API WELL #: <b>47 009 00185</b> STATE COUNTY PERMIT
	WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input checked="" type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>	WATERSHED: BUFFALO CREEK DISTRICT: BUFFALO COUNTY: BROOKE SURFACE OWNER: THURMAN O. SPEECE JR & GOLDIE M. STANLEY OIL & GAS ROYALTY OWNER: THURMAN O. SPEECE JR & GOLDIE M. STANLEY
DRILL <input type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/>	CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE <input checked="" type="checkbox"/> (SPECIFY) AS-DRILLED	ESTIMATED DEPTH: 5,971' (TMD) 10,000' (TMD)
WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378	DESIGNATED AGENT: DEE SOUTHALL ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378	DATE: 05-03-2017 DRAWN BY: K. POTH SCALE: 1" = 2000' DRAWING NO: 030-2888 WELL LOCATION PLAT