

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

API 47-009-00192 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 3H
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 4,448,882.978 Easting 534,888.287
Landing Point of Curve Northing 4,449,222.946 Easting 534,837.531
Bottom Hole Northing 4,452,000.287 Easting 533,683.809

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 5/30/2017 Date drilling commenced 7/24/2017 Date drilling ceased 11/08/2017
Date completion activities began 2/12/2018 Date completion activities ceased 04/22/2018
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 N
Salt water depth(s) ft 475 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 320 Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by:

C. Hill 4-3-19

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API 47-009 - 00192 Farm name THURMAN SPEECE, JR. & GOLDIE N. STANLEY Well number THURMAN SPEECE BRK 3H

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	26	20	126	NEW	J-55/94#		Y
Surface	17.5	13.375	407	NEW	J-55/54.50#	346.4', 314.9'	Y, 10 bbls
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	1718	NEW	J-55/36#		Y, 37 bbls
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	16505	NEW	HCP-110/20#		Y
Tubing		2.375	6195	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	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	3069	15.60	1.19	3652.11	SURFACE	24
Tubing							

Drillers TD (ft) 16505 Loggers TD (ft) 16505
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5140

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	ATTACHMENT	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	ATTACHMENT	2				

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Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
MARCELLUS	5,945	TVD 6,222 MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 1298 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs
 OPEN FLOW Gas 1762 mcfpd Oil 151 bpd NGL _____ bpd Water 935 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ 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.

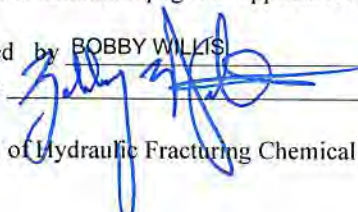
Drilling Contractor SWN DRILLING COMPANY
 Address PO BOX 12359 City SPRING State TX Zip 77391-2359

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 5/22/2018

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

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**THURMAN SPEECE 3H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	1/20/2018	16,390	16,318	33
2	2/13/2018	16,285	16,213	33
3	2/13/2018	16,180	16,108	33
4	2/14/2018	16,075	16,003	33
5	2/14/2018	15,970	15,895	33
6	2/14/2018	15,865	15,793	33
7	2/16/2018	15,760	15,688	33
8	2/16/2018	15,659	15,583	33
9	2/16/2018	15,550	15,478	33
10	2/17/2018	15,445	15,373	33
11	2/17/2018	15,340	15,268	33
12	2/19/2018	15,235	15,163	33
13	2/20/2018	15,130	15,058	33
14	2/20/2018	15,025	14,958	33
15	2/20/2018	14,920	14,848	33
16	2/21/2018	14,815	14,743	33
17	2/21/2018	14,710	14,640	33
18	2/22/2018	14,605	14,533	33
19	2/22/2018	14,500	14,425	33
20	2/23/2018	14,395	14,323	33
21	2/24/2018	14,290	14,218	33
22	2/24/2018	14,187	14,113	33
23	2/25/2018	14,080	14,008	33
24	2/25/2018	13,975	13,903	33
25	2/25/2018	13,870	13,797	33
26	2/26/2018	13,768	13,693	33
27	2/26/2018	13,660	13,588	33
28	2/26/2018	13,550	13,483	33
29	2/27/2018	13,450	13,378	33
30	2/28/2018	13,342	13,273	33
31	3/1/2018	13,240	13,168	33
32	3/3/2018	13,132	13,063	33
33	3/3/2018	13,030	12,958	33
34	3/3/2018	12,925	12,854	33
35	3/4/2018	12,820	12,748	33
36	3/4/2018	12,715	12,647	33
37	3/4/2018	12,610	12,538	33
38	3/4/2018	12,505	12,428	33
39	3/5/2018	12,400	12,328	33
40	3/5/2018	12,295	12,223	33
41	3/5/2018	12,185	12,118	33
42	3/6/2018	12,085	12,013	33
43	3/6/2018	11,980	11,909	33

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**THURMAN SPEECE 3H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
44	3/6/2018	11,875	11,803	33
45	3/7/2018	11,770	11,698	33
46	3/7/2018	11,663	11,593	33
47	3/7/2018	11,560	11,488	33
48	3/8/2018	11,455	11,383	33
49	3/8/2018	11,350	11,273	33
50	3/8/2018	11,245	11,173	33
51	3/8/2018	11,140	11,068	33
52	3/9/2018	11,035	10,963	33
53	3/9/2018	10,930	10,858	33
54	3/9/2018	10,825	10,753	33
55	3/10/2018	10,720	10,648	33
56	3/10/2018	10,615	10,543	33
57	3/10/2018	10,506	10,438	33
58	3/10/2018	10,405	10,333	33
59	3/10/2018	10,300	10,228	33
60	3/11/2018	10,195	10,123	33
61	3/11/2018	10,090	10,019	33
62	3/11/2018	9,985	9,913	33
63	3/12/2018	9,880	9,808	33
64	3/12/2018	9,775	9,703	33
65	3/12/2018	9,670	9,603	33

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THURMAN SPEECE 3H
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	2/13/2018	84	8,187	5,535	4,038	212,940	5,946	
2	2/13/2018	85	8,145	5,617	4,417	219,080	4,840	
3	2/14/2018	85	8,106	5,340	4,223	215,460	5,343	
4	2/14/2018	86	8,360	5,710	4,636	217,850	4,923	
5	2/14/2018	86	8,209	5,171	4,309	217,600	4,696	
6	2/15/2018	77	8,268	5,088	4,697	216,660	4,927	
7	2/16/2018	83	8,456	5,852	4,509	217,700	4,975	
8	2/16/2018	87	8,136	5,430	4,439	217,800	4,626	
9	2/16/2018	89	7,892	4,988	4,389	215,920	4,922	
10	2/17/2018	88	7,856	5,475	4,462	218,450	4,936	
11	2/19/2018	88	8,003	5,412	4,575	217,460	5,157	
12	2/19/2018	88	8,003	5,181	4,472	217,700	4,715	
13	2/20/2018	89	8,116	5,624	4,584	216,610	4,612	
14	2/20/2018	86	7,667	5,539	4,551	218,360	4,635	
15	2/21/2018	75	8,204	5,609	4,385	219,180	4,727	
16	2/21/2018	89	8,112	5,867	4,543	218,910	4,568	
17	2/22/2018	87	7,885	5,324	3,700	217,380	4,854	
18	2/22/2018	83	8,116	5,586	4,400	216,960	4,563	
19	2/23/2018	76	7,874	5,407	4,508	218,120	4,919	
20	2/24/2018	77	7,798	5,320	4,235	219,250	4,560	
21	2/24/2018	88	7,861	5,236	4,634	217,210	4,666	
22	2/24/2018	87	8,016	5,242	3,860	215,000	4,411	
23	2/25/2018	88	7,988	5,161	4,414	215,940	4,685	
24	2/25/2018	88	7,906	5,181	4,691	216,520	4,462	
25	2/26/2018	87	7,616	5,252	4,500	224,000	4,587	
26	2/26/2018	81	7,922	5,484	4,459	218,640	4,689	
27	2/26/2018	84	8,189	4,982	4,441	218,890	4,661	
28	2/26/2018	87	8,009	5,162	4,489	217,375	4,435	
29	2/28/2018	85	7,684	5,403	4,444	217,850	4,415	
30	3/1/2018	81.8	8,348	5,406	4,539	215,800	4,569	
31	3/2/2018	85.1	8,071	6,132	4,441	217,700	4,410	
32	3/3/2018	83.2	8,336	5,498	4,929	217,820	4,529	
33	3/3/2018	84.1	8,237	4,944	4,526	216,780	4,544	
34	3/3/2018	80.9	8,114	5,322	4,588	217,650	4,400	
35	3/4/2018	88.2	7,885	5,773	4,411	217,700	4,385	
36	3/4/2018	72.3	8,425	5,409	4,633	133,530	4,203	
37	3/4/2018	83.2	7,269	5,142	4,438	217,725	4,625	
38	3/5/2018	85.5	7,491	5,502	4,424	217,850	4,171	
39	3/5/2018	79.8	7,672	5,408	4,512	219,440	4,245	
40	3/5/2018	81	7,367	5,167	4,386	217,380	4,236	
41	3/6/2018	85.5	7,418	5,462	4,443	217,775	4,260	
42	3/6/2018	82.9	7,779	5,336	4,404	216,780	4,223	
43	3/6/2018	80.4	7,103	5,012	4,375	217,675	4,179	
44	3/7/2018	80.2	7,934	5,627	4,425	217,725	4,205	
45	3/7/2018	84.6	7,604	5,262	9,422	217,460	4,451	
46	3/7/2018	84.6	8,034	5,350	4,292	219,440	4,240	
47	3/8/2018	88.6	7,547	5,395	4,419	217,800	4,308	
48	3/8/2018	88.1	7,613	5,438	4,447	217,975	4,220	
49	3/8/2018	85.6	7,682	5,387	4,504	219,740	4,262	
50	3/8/2018	87	7,574	5,643	4,479	217,850	4,315	
51	3/9/2018	85.6	7,740	5,708	4,540	217,200	4,267	
52	3/9/2018	87.7	7,799	5,392	4,460	218,140	5,034	
53	3/9/2018	89.7	7,756	5,442	4,524	216,100	4,175	

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THURMAN SPEECE 3H

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	3/9/2018	88.2	7,462	5,502	4,445	217,825	4,210	
55	3/10/2018	84.7	7,967	5,781	4,496	217,325	4,164	
56	3/10/2018	86.9	7,673	5,548	4,547	219,440	4,218	
57	3/10/2018	87.1	7,376	5,602	4,674	219,940	4,282	
58	3/10/2018	88.4	7,426	5,535	4,511	217,450	4,269	
59	3/11/2018	78.1	8,078	5,960	4,543	218,125	4,101	
60	3/11/2018	84.2	8,212	5,890	4,876	218,580	4,189	
61	3/11/2018	79.4	8,194	5,938	4,428	210,720	4,173	
62	3/11/2018	88.1	7,366	5,649	4,541	217,350	4,222	
63	3/12/2018	87.5	7,473	5,755	4,570	216,900	4,212	
64	3/12/2018	89.6	7,470	5,610	4,546	218,000	4,151	
65	3/12/2018	82	7,941	6,320	4,729	217,840	4,246	

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Well Name: Thurman Speece BRK 3H 47009001920000

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)	5746.00	5701.00	5829.00	5767.00	
Burket (shale)	5829.00	5767.00	5846.00	5780.00	
Tully (ls)	5846.00	5780.00	5921.00	5832.00	
Mahantango (shale)	5921.00	5832.00	6222.00	5945.00	
Marcellus (shale)	6222.00	5945.00	NA	NA	GAS

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/13/2018
Job End Date:	3/26/2018
State:	West Virginia
County:	Brooke
API Number:	47-009-00192-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Thurman Speece BRK 3H
Latitude:	40.18961000
Longitude:	-80.59014400
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	5,969
Total Base Water Volume (gal):	17,612,456
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					
Sand	J.S. Well Services, LLC	Proppant	Water	7732-18-5	100.00000	85.86700	
HCL Acid (12.6%-17.5%)	J.S. Well Services, LLC	Bulk Acid	Crystalline Silica, quartz	14808-60-7	100.00000	12.30254	
CPS 500	J.S. Well Services, LLC	Fluid Loss Additive	Water	7732-18-5	87.40000	1.09485	
			Hydrogen Chloride	7647-01-0	17.50000	0.25455	
WFRA-2000	J.S. Well Services, LLC	Friction Reducer	Ceramic Microspheres	36402-68-4	65.00000	0.42865	
			Glutaraldehyde	111-30-8	1.00000	0.00460	
			Water	7732-18-5	60.00000	0.01154	
			2-Propanoic acid, polymer with 2-propanamide	9003-06-9	30.00000	0.00577	
			Hydrated light distillate (petroleum)	84742-47-8	30.00000	0.00473	
BIOC11219A	Nato Chadron	Anti-Bacterial Agent					

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				Methanol	54-17-5	60.00000	0.00925
				Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	58424-85-1	30.00000	0.00588
				Glutaraldehyde	111-30-8	10.00000	0.00196
LT FLUSH SYSTEM I	J.S. Well Services, LLC	Other					
				Mineral oil, petroleum distillates, hydro-treated light naphthenic	54742-53-6	100.00000	0.00412
SCAL 16486A	Nalco Champion	Scale Inhibitor					
				Ethylene Glycol	107-21-1	30.00000	0.00166
				Amine Triphosphate	Proprietary	30.00000	0.00149
AI-303	J.S. Well Services, LLC	Acid Corrosion Inhibitors					
				Ethylene glycol	107-21-1	40.00000	0.00039
				Cinnamaldehyde	104-55-2	20.00000	0.00014
				Formic acid	54-18-6	20.00000	0.00014
				Butyl cellosolve	111-76-2	20.00000	0.00012
				Polyether	50828-78-6	10.00000	0.00007
				Acetophenone, thiourea, formaldehyde polymer	58527-49-1	5.00000	0.00003
CALCIUM CHLORIDE	J.S. Well Services, LLC	Other					
				Calcium chloride	10043-52-4	90.00000	0.00053

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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5D Survey Report

SOUTHWESTERN ENERGY

Field Name: *SOUTHWESTERN_BROOKE CO, WV UTM NAD 83 (17N)*
Site Name: *Thurman Speece BRK Pad*
Well Name: *Thurman Speece BRK 3H*
Survey: *Definitive survey*

19 November 2017

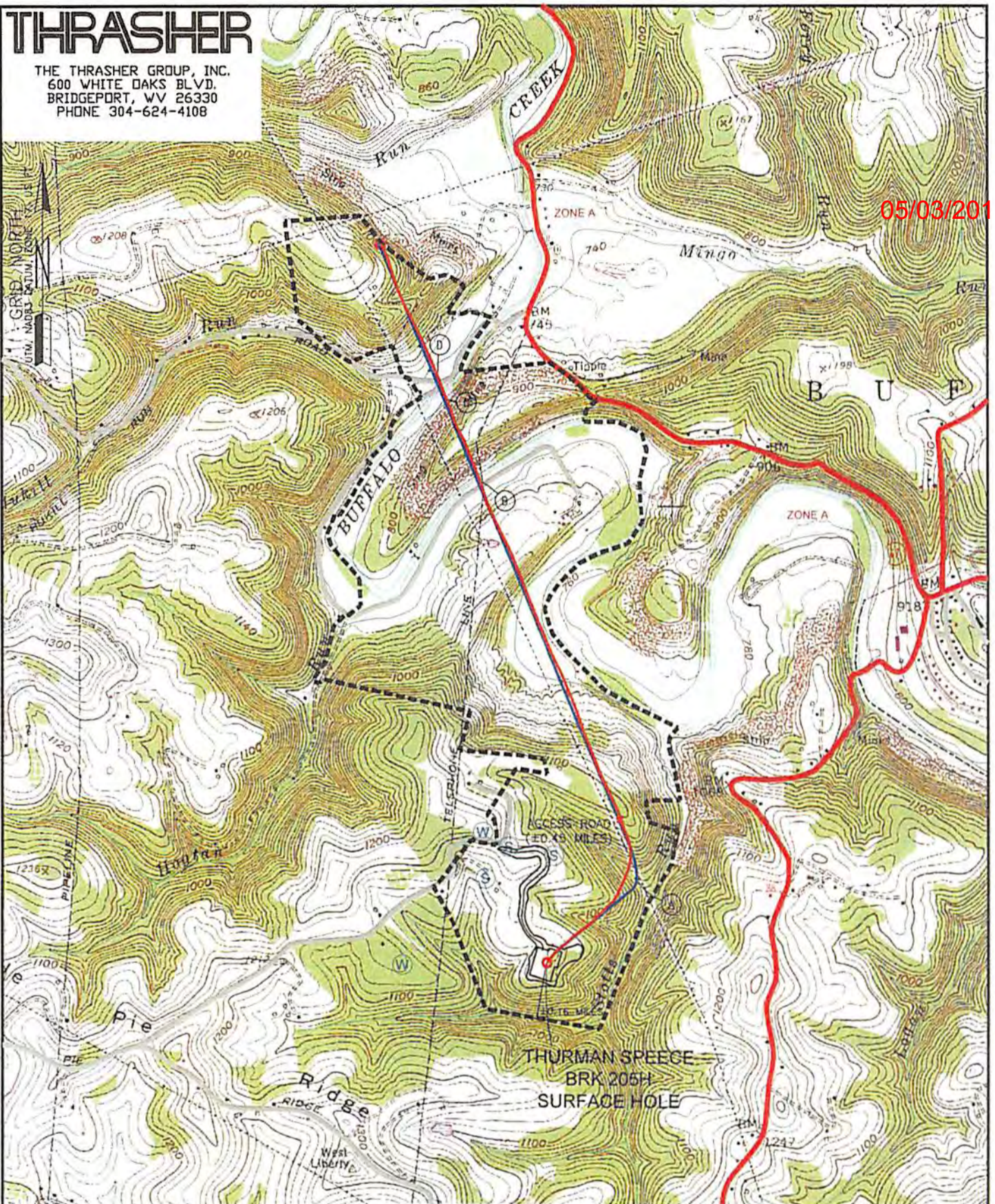


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THRASHER

THE THRASHER GROUP, INC.
600 WHITE OAKS BLVD.
BRIDGEPORT, WV 26330
PHONE 304-624-4108



05/03/2019

2000 0 2000

BROOKE CO
OHIO CO

WELL: THURMAN SPEECE BRK 205H
QUAD: BETHANY, WV

GRAPHIC SCALE IN FEET

NAME AND DISTANCE TO THE NEAREST STREAM:
UNNAMED TRIBUTARY TO STOTTS RUN IS LOCATED ±0.16 MILES SOUTH OF THE CENTER OF THE DRILL PAD.

STREAM CROSSING COORDINATES (NAD 83):
A. LAT: 40.192990' / LONG: -80.585171'
B. LAT: 40.209534' / LONG: -80.583744'
C. LAT: 40.213083' / LONG: -80.595670'
D. LAT: 40.213277' / LONG: -80.595771'

COMPANY:
SWN Production Company, LLC
SWN^{PL} A V+[®] Production Company™

WELL RESTRICTIONS:
WELL PAD, LOD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET
WELL PAD, LOD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET
WELL PAD, LOD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET
WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET
CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >625 FEET
CENTER OF PAD TO AGRICULTURAL BUILDINGS LARGER THAN 2500 SQ FT: >625 FEET

OPERATOR'S THURMAN SPEECE
WELL #: BRK 205H
LOCATION: BUFFALO,
BROOKE COUNTY, WEST VIRGINIA

FEMA FLOOD INFORMATION:
BY GRAPHIC PLOTTING ONLY FEMA FIRM INCORPORATED AREA OF BROOKE COUNTY, WEST VIRGINIA; MAP NUMBER 54009C0130D; EFFECTIVE DATE: 04/19/2010 & MAP NUMBER 54009C0140D; EFFECTIVE DATE: 04/19/2010.

SURFACE HOLE LOCATION:
GEOGRAPHIC (NAD83):
LATITUDE: 40.189634°
LONGITUDE: -80.590062°
BOTTOM HOLE LOCATION:
GEOGRAPHIC (NAD83):
LATITUDE: 40.2192031°
LONGITUDE: -80.5989173°

LEGEND:
○ PROPOSED SURFACE HOLE / BOTTOM HOLE
● EXISTING / PRODUCING WELLHEAD
LPL* LANDING POINT LOCATION
FLOOD PLAN
ACCESS ROAD
PUBLIC ROAD
ACCESS ROAD TO PREV. SITE
LEASE BOUNDARY
PROPOSED PATH
AS-DRILLED PATH

REVISIONS:
DATE: 05-03-2018
DRAWN BY: K. POTH
SCALE: 1" = 2000'
DRAWING NO: 030-2888
TOPOGRAPHIC MAP

THRASHER

THE THRASHER GROUP, INC.
600 WHITE OAKS BLVD.
BRIDGEPORT, WV 26330
PHONE 304-624-4108

- 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	RICHARD A. STANLEY JR.	03-0842-0042-0001	2.00
3	THURMAN O. SPEECE JR. & GOLDIE M. STANLEY	P/3 03-0842-0042-0000	73.29
4	THURMAN O. SPEECE JR. & GOLDIE M. STANLEY	P/3 03-0842-0042-0000	15.85
5	THURMAN O. SPEECE JR. & ADAM (SURV)	03-0842-0046-002	2.00
6	LABELLE FARMS INC.	03-0842-0060-0000	349.88
7	ELLEN B. SANFORD	03-0837-0076-0000	66.00
8	LINDA REYES GREATHOUSE & VICKI LYNN GREATHOUSE HAMILTON	03-0837-0087-0000	322.84
9	BRIAN K. & CINA M. HANEY	03-0837-0077-0000	45.75
10	MEMORI HOME & GARIBUSI LLC.	03-0837-0082-0000	1.00
11	ROBERT D. BONE	03-0837-0081-0000	81.99
12	DEBRA CYPHER, MATTHEW FAIR, SUSAN FAIR & RICHARD MENTHON	03-0837-0088-0000	59.95

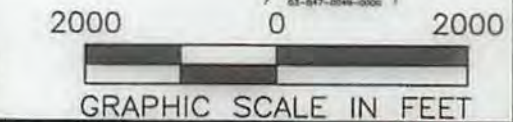
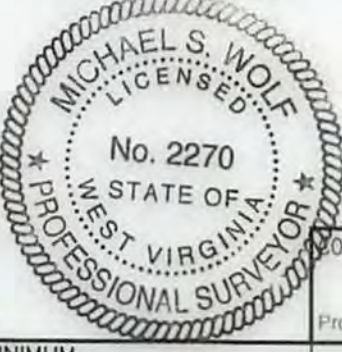
05/03/2019

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,448,882.978 EASTING: 534,888.287
LANDING POINT LOCATION (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,449,097.948 EASTING: 534,888.088
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,452,002.292 EASTING: 533,683.084
SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,448,882.978 EASTING: 534,888.287
LANDING POINT LOCATION (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,449,222.946 EASTING: 534,837.531
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,452,000.287 EASTING: 533,683.809



ID	ADJOINER	TAX PARCEL
A	BRIAN K. & CINA M. HANEY	03-837-0077-0000
B	TERRENCE & SUSAN BONE	03-837-0080-0000
C	BENJAMIN M. MOGA & CHRISTINE L. HESE	03-837-0079-0000
D	BENJAMIN M. MOGA & CHRISTINE L. HESE	03-837-0075-0000
E	WILLIAM A. H. & JENNA L. SPERRINGER	03-837-0078-0000
F	WILLIAM A. H. & JENNA L. SPERRINGER	03-837-0078-0000
G	WINDSOR POWER HOUSE COAL CO.	03-842-0048-0000
H	THURMAN O. SPEECE & GOLDIE M. STANLEY	03-842-0047-0000
I	THURMAN O. SPEECE & GOLDIE M. STANLEY	03-842-0045-0000
J	THURMAN O. SPEECE & GOLDIE M. STANLEY	03-842-0043-0000
K	LINDA R. GREATHOUSE & VICKI L. HAMILTON	03-837-0087-0000
L	KEVIN CHARNAY	03-837-0083-0000
M	ROBERT BONE	03-837-0089-0000
N	CARL R. & SANDRA S. CLARK	03-837-0086-0000
O	MICHAEL ARACHCH	03-837-0085-0000
P	KAREN K. TOBER	03-837-0084-0000
Q	EUGENE EDWARD RINDKER	03-837-0083-0000
R	BRIAN K. & CINA M. HANEY	03-837-0077-0000

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 *Michael S. Wolf 5/3/18*

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)

THURMAN SPEECE
OPERATOR'S WELL #: BRK 3H

API WELL #: 47 009 00192
STATE . COUNTY PERMIT

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

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

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

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 5,846' FVD 16,505' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: DEE SOUTHALL

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:
 O PROPOSED SURFACE HOLE / BOTTOM HOLE
 * EXISTING / PRODUCING WELLHEAD
 LPL LANDING POINT LOCATION
 W EXISTING WATER WELL
 S EXISTING SPRING

— SURVEYED BOUNDARY
 --- DRILLING UNIT
 - - - LEASE BOUNDARY
 - - - PROPOSED PATH
 - - - AS-DRILLED PATH

REVISIONS: DATE: 05-03-2018

DRAWN BY: K. POTHS
 SCALE: 1" = 2000'
 DRAWING NO: 030-2888
 WELL LOCATION PLAT

WELL LOCATION PLAT	DRAWING NO. 030-2888
SCALE: 1" = 2000'	DRAWN BY: K. POTH
REVISIONS:	DATE: 02-03-2018
CITY: JANE LEW	STATE: WV
ZIP CODE: 26378	DESIGNATED AGENT: DEE SOUTHL
ADDRESS: P.O. BOX 1300	WELL OPERATOR: SWN PRODUCTION COMPANY, LLC
ESTIMATED DEPTH: 2,846' INT 16,262' FMD	OTHER CHANGE (SPECIFY) A2--DRILLED
CONVERT PLUG & ABANDON	CLEAN OUT & REPLUG
DRILL DEEPER	REDRILL
FRACURE OR STIMULATE	PLUG OFF OLD FORMATION
PERFORATE NEW FORMATION	ACREAGE: 112.23
QUADRANGLE: BETHANY	ELEVATION: 1130.2'
DISTRICT: BUFFALO	WATERSHED: BUFFALO CREEK
WELL TYPE: OIL	WASTE DISPOSAL
PRODUCTION	DEEP
LIQUID INJECTION	GAS
STORAGE	SHALLOW

CHARLESTON, WV 25034	OFFICE OF OIL & GAS	WVDEP	UNITED STATES TOPOGRAPHIC MAPS
ELEVATION: (NAVD 88, US FT)	SOURCE OF GRADE GPS	PROVEN SURVEY	ACCURACY: 1/2000
API WELL #:	47	009	00192
STATE	COUNTY	PERMIT	THURMAN SPECE
OPERATOR'S WELL #:	BRK 3H	THURMAN SPECE	PRODUCTION COMPANY, LLC
COMPANY:	SWN	SWN	PRODUCTION COMPANY, LLC

GRAPHIC SCALE IN FEET

SWN
 Production Company, LLC
 COMPANY: SWN



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P.2.2270



BOTTOM HOLE LOCATION (BHL)	EASTING: 234,888.888	NORTHING: 4,448,927.948	UTM (NAD83, ZONE 17, METERS)
LANDING POINT LOCATION (LPL)	EASTING: 234,888.287	NORTHING: 4,448,882.978	UTM (NAD83, ZONE 17, METERS)
SURFACE HOLE LOCATION (SHL)	EASTING: 233,683.809	NORTHING: 4,452,000.287	UTM (NAD83, ZONE 17, METERS)
BOTTOM HOLE LOCATION (BHL)	EASTING: 233,683.804	NORTHING: 4,452,002.292	UTM (NAD83, ZONE 17, METERS)
BOTTOM HOLE LOCATION (BHL)	EASTING: 234,888.888	NORTHING: 4,448,927.948	UTM (NAD83, ZONE 17, METERS)
LANDING POINT LOCATION (LPL)	EASTING: 234,888.287	NORTHING: 4,448,882.978	UTM (NAD83, ZONE 17, METERS)
SURFACE HOLE LOCATION (SHL)	EASTING: 233,683.809	NORTHING: 4,452,000.287	UTM (NAD83, ZONE 17, METERS)

TAX PARCEL	ADJACENT OWNER
07-043-0014-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0015-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0016-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0017-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0018-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0019-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0020-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0021-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0022-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0023-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0024-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0025-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0026-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0027-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0028-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0029-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0030-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0031-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0032-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0033-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0034-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0035-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0036-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0037-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0038-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0039-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0040-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0041-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0042-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0043-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0044-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0045-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0046-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0047-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0048-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0049-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0050-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0051-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0052-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0053-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0054-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0055-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0056-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0057-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0058-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0059-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0060-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0061-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0062-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0063-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0064-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0065-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0066-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0067-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0068-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0069-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0070-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0071-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0072-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0073-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0074-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0075-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0076-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0077-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0078-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0079-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0080-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0081-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0082-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0083-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0084-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0085-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0086-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0087-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0088-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0089-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0090-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0091-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0092-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0093-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0094-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0095-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0096-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0097-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0098-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0099-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY
07-043-0100-0000	THURMAN O SPEECE JR & GOLDIE M STANLEY

THRASHER
 THE THRASHER GROUP, INC.
 600 WHITE OAK BLVD.
 BRIDGEPORT, WV 26330
 PHONE 304-624-4108
 NOTES ON SURVEY

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- NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
- NO PERMANENT STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TIGHT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.

BHL 2,882
 Latitude: 40°12'00" SHL 1,967'

BHL 11,120'

SHL 5,168'

SHL 2,882'