

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

RECEIVED  
Office of Oil and Gas

JUN - 5 2019

WV Department of  
Environmental Protection

API 47-009-00252 County BROOKE District CROSS CREEK  
Quad STEBENVILLE EAST, OH Pad Name STATE OF WV DNR B BRK PAD Field/Pool Name Panhandle Field Wet  
Farm name STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DNR Well Number STATE OF WV DNR B 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 4,465,699.98 Easting 540,102.20  
Landing Point of Curve Northing 4,465,802.91 Easting 540,280.02  
Bottom Hole Northing 4,468,422.76 Easting 539,266.31

Elevation (ft) 1201.1 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 5/31/2018 Date drilling commenced 9/29/2018 Date drilling ceased 10/13/2018  
Date completion activities began 2/16/2019 Date completion activities ceased 3/12/2019  
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 543 Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 693 Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 135 Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed

*C. B. H. 9.9.19*

Reviewed by: SB 9.9.19

WR-35  
Rev. 8/23/13

API 47-009 - 00252 Farm name STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DNR Well number STATE OF WV DNR B 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	643	NEW	J-55/54.50#	169.1	Y, 1
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	1444	NEW	J-55/36#		Y, 18
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	15487	NEW	HCP-110/20#		Y
Tubing		2.375	6251	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 <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	792	15.60	1.19	942.48	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	526	15.60	1.20	631.2	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	2,920	15.60	1.19	3,474.8	SURFACE	24
Tubing							

Drillers TD (ft) 15,487 Loggers TD (ft) 15,487  
 Deepest formation penetrated MARCELLUS SHALE Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 4,874

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

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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API 47- 009 - 00252

Farm name STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DNR

Well number STATE OF WV DNR B BRK 5H

**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.



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/14/2019
Job End Date:	3/1/2019
State:	West Virginia
County:	Brooke
API Number:	47-009-00252-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	WV DNR B 5H
Latitude:	40.34088200
Longitude:	-80.52784300
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	5,613
Total Base Water Volume (gal):	14,156,431
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
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	85.51765	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.82466	





Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.						
		Crystalline silica, quartz	14808-60-7	100.00000	13.60842	
		Hydrochloric acid	7647-01-0	15.00000	0.11345	
		Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02429	
		Polyacrylate	Proprietary	30.00000	0.02429	
		Propylene glycol	57-55-6	60.00000	0.01185	
		Fatty acid ester	Proprietary	5.00000	0.00810	
		Acetic Acid	64-19-7	60.00000	0.00549	
		Methanol	67-56-1	70.00000	0.00490	
		Ammonium chloride	12125-02-9	5.00000	0.00405	
		Sodium chloride	7647-14-5	5.00000	0.00405	
		Ethoxylated fatty acid	Proprietary	5.00000	0.00405	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
		Citric Acid	77-92-9	40.00000	0.00366	
		Tributyl tetradecyl phosphonium chloride	81741-28-8	10.00000	0.00197	
		Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00155	
		Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00155	
		Glutaraldehyde	111-30-8	10.00000	0.00052	
		Glutaraldehyde	111-30-8	10.00000	0.00052	
		Fatty Acids	Trade Secret	10.00000	0.00026	

\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

\*\*\* If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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)

**STATE OF WV DNR B BRK 5H  
ATTACHMENT 1  
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	2/16/2019	15,445	15,350	36
2	2/16/2019	15,315	15,208	42
3	2/17/2019	15,175	15,068	42
4	2/17/2019	15,035	14,928	42
5	2/17/2019	14,895	14,788	42
6	2/18/2019	14,755	14,648	42
7	2/18/2019	14,615	14,508	42
8	2/18/2019	14,475	14,368	42
9	2/18/2019	14,335	14,228	42
10	2/18/2019	14,195	14,088	42
11	2/19/2019	14,055	13,948	42
12	2/19/2019	13,915	13,808	42
13	2/19/2019	13,775	13,668	42
14	2/19/2019	13,635	13,528	42
15	2/19/2019	13,495	13,388	42
16	2/20/2019	13,355	13,248	42
17	2/20/2019	13,215	13,108	42
18	2/20/2019	13,075	12,968	42
19	2/20/2019	12,935	12,828	42
20	2/21/2019	12,795	12,688	42
21	2/21/2019	12,655	12,548	42
22	2/21/2019	12,515	12,408	42
23	2/13/2019	12,375	12,268	42
24	2/21/2019	12,235	12,128	42
25	2/22/2019	12,095	11,988	42
26	2/22/2019	11,955	11,848	42
27	2/22/2019	11,815	11,708	42
28	2/22/2019	11,675	11,568	42
29	2/22/2019	11,535	11,428	42
30	2/23/2019	11,395	11,288	42
31	2/23/2019	11,255	11,148	42
32	2/23/2019	11,115	11,008	42
33	2/23/2019	10,975	10,868	42
34	2/23/2019	10,835	10,728	42
35	2/23/2019	10,695	10,588	42
36	2/24/2019	10,555	10,448	42
37	2/24/2019	10,415	10,308	42
38	2/24/2019	10,275	10,168	42
39	2/24/2019	10,135	10,028	42
40	2/24/2019	9,995	9,888	42
41	2/25/2019	9,855	9,748	42
42	2/25/2019	9,715	9,608	42
43	2/25/2019	9,575	9,468	42



**STATE OF WV DNR B BRK 5H  
ATTACHMENT 1  
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
44	2/25/2019	9,435	9,328	42
45	2/26/2019	9,295	9,188	42
46	2/26/2019	9,155	9,048	42
47	2/26/2019	9,015	8,908	42
48	2/27/2019	8,875	8,768	42
49	2/27/2019	8,735	8,628	42
50	2/27/2019	8,595	8,488	42
51	2/27/2019	8,455	8,348	42
52	2/27/2019	8,315	8,208	42
53	2/27/2019	8,175	8,068	42
54	2/27/2019	8,035	7,928	42
55	2/28/2019	7,895	7,788	42
56	2/28/2019	7,755	7,648	42
57	2/28/2019	7,615	7,508	42
58	2/28/2019	7,475	7,368	42
59	2/28/2019	7,335	7,228	42
60	2/28/2019	7,195	7,088	42
61	2/28/2019	7,055	6,948	42
62	2/28/2019	6,915	6,808	42
63	3/1/2019	6,775	6,668	42
64	3/1/2019	6,635	6,528	42
65	3/1/2019	6,495	6,388	42

## STATE OF WV DNR B 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	2/16/2019	83	7,882	7,213	3,813	274,310	8,262	0
2	2/16/2019	99	8,084	4,951	4,119	281,120	7,953	0
3	2/17/2019	99	7,986	5,067	3,980	279,420	7,572	0
4	2/17/2019	101	8,054	4,687	4,058	280,486	7,780	0
5	2/17/2019	98	7,666	4,775	3,979	281,070	7,606	0
6	2/18/2019	71	8,225	4,792	3,995	282,849	7,052	0
7	2/18/2019	88	7,943	4,855	4,057	279,374	6,055	0
8	2/18/2019	99	7,806	4,563	4,029	279,507	5,238	0
9	2/18/2019	95	7,906	4,279	3,965	280,210	4,953	0
10	2/18/2019	97	7,597	4,503	3,886	279,680	4,868	0
11	2/19/2019	86	7,465	4,513	4,021	281,910	4,997	0
12	2/19/2019	96	7,933	4,830	4,093	279,789	5,043	0
13	2/19/2019	98	7,768	5,080	4,148	278,354	5,034	0
14	2/19/2019	94	7,552	4,682	4,029	283,730	7,279	0
15	2/20/2019	94	7,610	4,549	4,099	278,690	5,025	0
16	2/20/2019	95	7,718	4,794	4,208	280,200	4,944	0
17	2/20/2019	98	7,802	5,072	4,182	278,620	4,864	0
18	2/20/2019	95	8,044	5,315	4,049	279,090	5,039	0
19	2/20/2019	97	7,907	5,151	4,185	279,100	4,953	0
20	2/21/2019	93	8,051	5,328	4,111	279,770	5,015	0
21	2/21/2019		7,772	5,316	4,059	277,350	4,619	0
22	2/21/2019	98	7,674	5,133	4,176	281,410	4,794	0
23	2/21/2019	95	7,794	4,840	4,264	279,160	4,754	0
24	2/21/2019	96	7,897	4,548	4,064	280,390	4,882	0
25	2/22/2019	95	8,056	5,217	4,185	281,110	4,795	0
26	2/22/2019	98	7,783	5,325	4,185	280,070	4,848	0
27	2/22/2019	98	7,684	5,302	4,219	277,660	4,676	0
28	2/22/2019	98	7,583	4,667	4,238	279,530	4,750	0
29	2/22/2019	93	8,085	5,210	4,187	279,320	4,769	0
30	2/23/2019	100.4	7,756	5,179	4,133	280,840	4,808	0
31	2/23/2019	99.4	7,747	5,138	4,825	279,920	4,481	0
32	2/23/2019	100.1	7,752	4,847	4,169	279,170	4,923	0
33	2/23/2019	99.8	7,638	5,036	4,146	280,110	4,716	0
34	2/23/2019	100.2	7,588	5,392	4,208	280,060	4,728	0
35	2/23/2019	100.4	7,513	5,391	4,256	279,270	4,662	0
36	2/24/2019	99.9	7,556	4,999	4,231	281,380	4,701	0
37	2/24/2019	100.2	7,396	4,726	4,197	279,530	4,654	0
38	2/24/2019	99.1	7,179	5,111	4,149	280,330	4,948	0
39	2/24/2019	100.1	7,707	4,851	4,149	280,160	5,029	0
40	2/25/2019	99.8	7,398	5,055	4,219	280,842	4,623	0
41	2/25/2019	100	7,125	4,864	4,209	280,018	4,755	0
42	2/25/2019	94.8	7,224	4,980	4,194	279,890	6,691	0
43	2/26/2019	100.1	7,150	4,910	4,238	279,960	4,696	0
44	2/26/2019	100.2	7,408	5,027	4,198	279,170	4,676	0
45	2/26/2019	99.7	7,117	5,536	4,266	279,723	4,541	0
46	2/26/2019	100.4	7,317	5,347	4,374	279,380	4,649	0
47	2/26/2019	100.1	7,476	5,492	4,350	280,090	4,620	0
48	2/27/2019	100.1	7,126	5,981	4,400	279,340	4,821	0
49	2/27/2019	100.5	7,101	5,065	4,440	280,120	4,859	0
50	2/27/2019	100.4	6,827	5,179	4,282	281,620	4,431	0
51	2/27/2019	99.79	6,748	5,322	4,290	280,250	4,474	0
52	2/27/2019	100.4	7,267	5,409	4,328	279,130	4,364	0
53	2/27/2019	100	7,330	5,771	4,351	280,420	4,567	0

**STATE OF WV DNR B 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
54	2/27/2019	99.9	7,919	5,438	4,390	281,480	4,590	0
55	2/28/2019	98.9	7,760	5,578	4,476	280,784	4,617	0
56	2/28/2019	100.7	7,232	5,584	4,426	281,054	4,628	0
57	2/28/2019	100.4	7,120	4,603	4,310	277,010	4,333	0
58	2/28/2019	100.2	6,709	5,546	4,264	279,610	4,392	0
59	2/28/2019	100.4	6,741	5,502	4,399	279,970	4,386	0
60	2/28/2019	100.4	6,825	5,526	4,435	279,890	4,333	0
61	2/28/2019	100.7	7,042	6,049	4,330	281,310	4,579	0
62	2/28/2019	100.5	6,947	5,943	4,426	280,924	4,452	0
63	3/1/2019	99.9	7,228	5,288	4,391	279,690	4,282	0
64	3/1/2019	100.2	6,922	5,285	4,300	279,970	4,329	0
65	3/1/2019	97.8	7,136	5,953	4,075	280,000	4,270	0

Via Federal Express

June 4, 2019

State of West Virginia  
Department of Environmental Protection  
Office of Oil & Gas  
601 57<sup>th</sup> Street  
Charleston, WV 25304

**RE:** SWN Production Company, LLC  
Operator ID: 494512924  
Regulatory Filings: WR-34 and WR-35

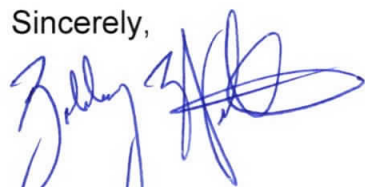
To Whom It May Concern:

Please find enclosed forms WR-34 Discharge Monitoring Report and WR-35 Well Operator's Report of Well Work along with supporting documentation, for the wells listed below.

API	Well Name
47-009-00252	STATE OF WV DNR B BRK 5H
47-009-00247	STATE OF WV DNR B BRK 6H

If you have any questions or require additional information, please contact me via email at Bobby\_willis@swn.com or telephone at (832) 796-7632.

Sincerely,



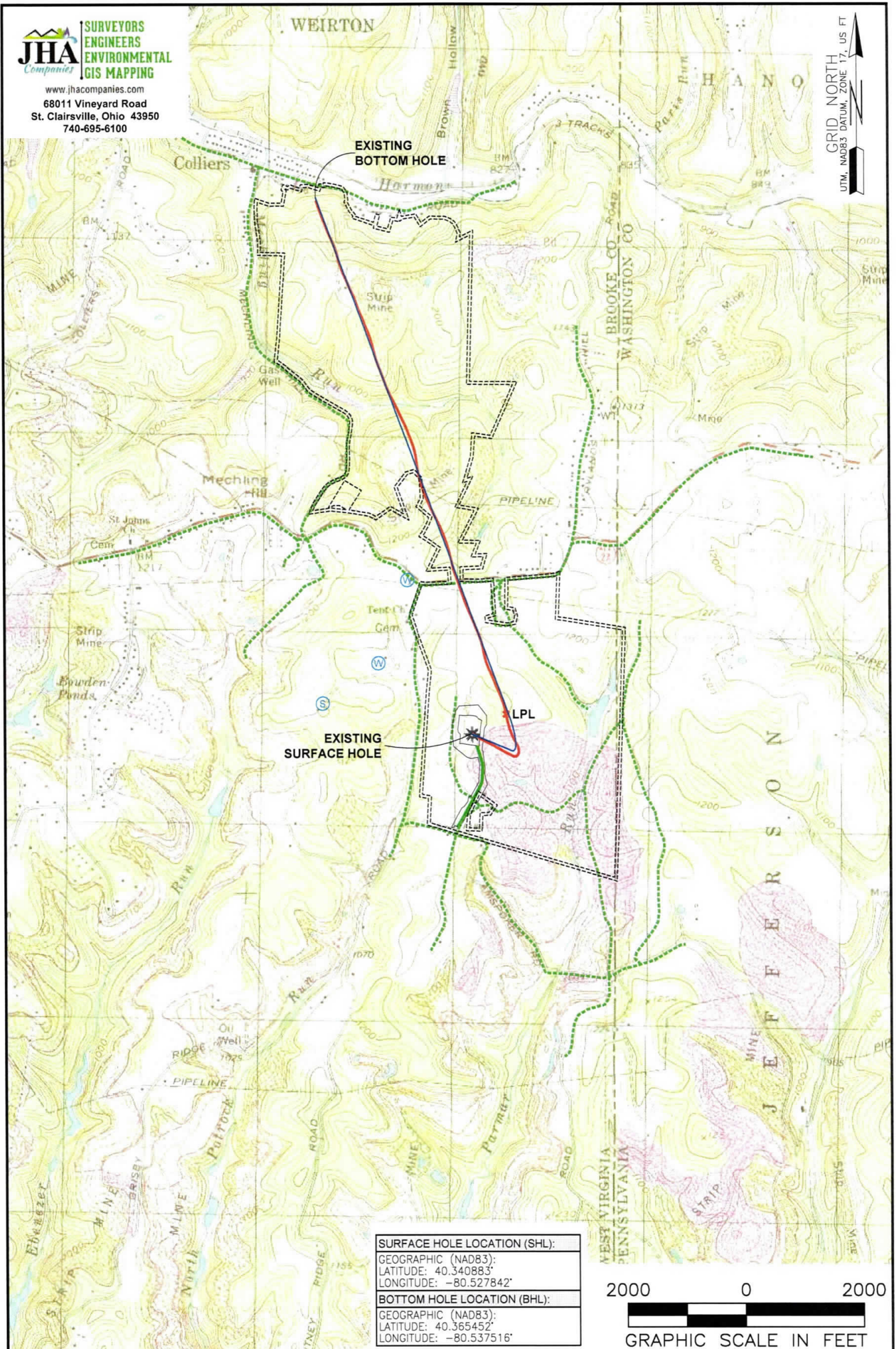
Bobby Willis  
Senior Regulatory Analyst  
SW Appalachia Division

/bw  
Encl.

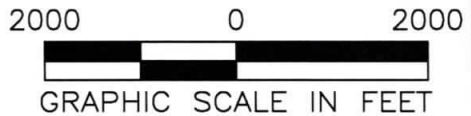
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<b>SURFACE HOLE LOCATION (SHL):</b>
GEOGRAPHIC (NAD83):
LATITUDE: 40.340883°
LONGITUDE: -80.527842°
<b>BOTTOM HOLE LOCATION (BHL):</b>
GEOGRAPHIC (NAD83):
LATITUDE: 40.365452°
LONGITUDE: -80.537516°



**NOTES ON SURVEY**

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

**LEGEND:**

- PROPOSED SURFACE HOLE / BOTTOM HOLE
- EXISTING / PRODUCING WELLHEAD
- LPL
- FLOOD PLAIN
- ACCESS ROAD
- PUBLIC ROAD
- ACCESS ROAD TO PREV. SITE
- LEASE BOUNDARY
- PROPOSED PATH
- ASDRILLED PATH

<b>WELL OPERATOR:</b> SWN PRODUCTION COMPANY, LLC	<b>WELL (FARM) NAME:</b> STATE OF WV DNR B BRK	<b>WELL #</b> 5H	<b>SERIAL #</b> XXXX
<b>ADDRESS:</b> 1300 FORT PIERPONT DRIVE, SUITE 201, MORGANTOWN, WV 26508	<b>COUNTY - CODE:</b> BROOKE - 009	<b>DISTRICT:</b> CROSS CREEK	<b>API NO:</b> 47-009-00252
<b>SURFACE OWNER:</b> STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DNR	<b>USGS 7 1/2 QUADRANGLE MAP NAME:</b> STEBENVILLE EAST, OH		



LATITUDE: 40°22'30" BOTTOM HOLE

10444'

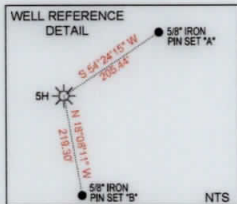
LATITUDE: 40°22'30" SURFACE HOLE

7754'

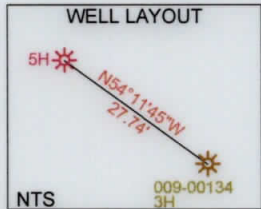


www.jhacompanies.com

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



LINE	BEARING	DISTANCE
L1	S07°41'32"W	690.98'
L2	S34°04'59"E	1255.73'



2000 0 2000

GRAPHIC SCALE IN FEET

<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4465699.98 EASTING: 540102.20
<b>LANDING POINT LOCATION (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4465803.77 EASTING: 540293.72
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4468438.91 EASTING: 539264.01
<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4465699.98 EASTING: 540102.20
<b>LANDING POINT LOCATION (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4465802.91 EASTING: 540280.02
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4468422.76 EASTING: 539266.31

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



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.

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

12417'

LONGITUDE: -80°30'00" SURFACE HOLE

3468'

LONGITUDE: -80°30'00" BOTTOM HOLE



(+) 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 SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)

STATE OF WV DNR B BRK		
OPERATOR'S WELL #:	5H	
API WELL #:	47	009 00252
	STATE	COUNTY PERMIT

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

WATERSHED: UPPER OHIO NORTH ELEVATION: 1,201.1'

DISTRICT: CROSS CREEK COUNTY: BROOKE QUADRANGLE: STEUBENVILLE EAST, OH

SURFACE OWNER: STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DNR ACREAGE: ±169.43

OIL & GAS ROYALTY OWNER: STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DNR ACREAGE: ±169.43

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: 5,673' TVD 15,487' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: BRITTANY WOODY  
 ADDRESS: 1300 FORT PIERPONT DRIVE, SUITE 201 ADDRESS: 1300 FORT PIERPONT DRIVE, SUITE 201  
 CITY: MORGANTOWN STATE: WV ZIP CODE: 26508 CITY: MORGANTOWN STATE: WV ZIP CODE: 26508

LEGEND:	REVISIONS:	DATE:
PROPOSED SURFACE HOLE / BOTTOM HOLE		05-29-2019
EXISTING / PRODUCING WELLHEAD		API NO: 47-009-00252
LPL	SURVEYED BOUNDARY	DRAWN BY: D. REED
EXISTING WATER WELL	LEASE BOUNDARY	SCALE: 1" = 2000'
EXISTING SPRING	AS-DRILLED PATH	DRAWING NO: 2017-541
	PROPOSED PATH	WELL LOCATION PLAT



WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION FOR THE USE AND BENEFIT OF THE WILDLIFE RESOURCES SECTION (S/R)	04-CC16-019.0000
TRACT	SURFACE OWNER	TAX PARCEL
2	DEBORAH JANE HAMILTON	04-C12K-078.0000
3	MARGARET FRESHWATER	04-C12K-080.0000
4	BRYAN W. BRADLEY & BRADLEY AND SHARON R. REED	04-C12K-014.0000
5	PHILIP D. & TRACY MASSIMI	04-C12K-017.0000
6	PHILIP D. & TRACY MASSIMI	04-C12K-011.0000
7	BONNIE A. BULLOCK	04-C12K-010.0000
8	BONNIE A. BULLOCK	04-C12K-080.0001
9	JAMES K. & BARBARA MCVICKER II	04-C12K-006.0000
10	SANDRA ELAINE SUMMERS	04-C12K-005.0000
11	BONNIE A. BULLOCK	04-C12K-004.0000
12	PATRICK J. & VIVIAN L. HARVEY	04-C12K-003.0000
13	FREDERICK D. & RHONDA J. BOLEY	04-C12K-002.0000
14	KRISTOPHER J. MOFFIT	04-C12K-081.0000
15	THOMAS E. & MADOLINE K. MOFFITT	04-C12J-017.0000
16	PEARL ARIA	04-CC12-012.0000
17	PEARL ARIA	04-CC12-011.0000
18	DONNA MERRIFIELD & ROXANN L. ROBINSON	04-CC8N-079.0800

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION FOR THE USE AND BENEFIT OF THE WILDLIFE RESOURCES SECTION	04-CC16-0022.0000
B	WEST VIRGINIA ST OF BUREAU OF COMM DIV OF NAT RES PB LD CORP	04-CC16-0020.0000
C	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION FOR THE USE AND BENEFIT OF THE WILDLIFE RESOURCES SECTION	04-CC16-0021.0000
D	STATE OF WEST VIRGINIA, BUREAU OF COMMERCE, DIVISION OF NATURAL RESOURCES, PUBLIC LAND CORPORATION FOR THE USE AND BENEFIT OF THE WILDLIFE RESOURCES SECTION	04-CC16-017.0000
E	WEST VIRGINIA ST OF BUREAU OF COMM DIV OF NAT RES PB LD CORP	04-CC16-0018.0000
F	WEST VIRGINIA ST OF BUREAU OF COMM DIV OF NAT RES PB LD CORP	04-CC16-0023.0001
G	WEST VIRGINIA ST OF BUREAU DIV OF COMM DIV OF NAT RES PB LD	04-CC16-0011.0000
H	TIMOTHY BRIAN CUNNINGHAM	04-CC16-0015.0000
I	DANNY D. TICE & MARCIA TICE	04-CC16-016.0000
J	DAVID A. & GERALDINE DODD	04-CC12-0041.0000
K	JOHN D. & KAREN DUFFIELD	04-CC12-0040.0000
L	JOHN D. & KAREN DUFFIELD	04-CC12-0039.0000
M	LARRY G., SR. & NORA LOU DODD	04-CC12-0038.0000
N	RITA K. THOMAS	04-CC12-0055.0000
O	ALLEN & JENNIFER MONROE	04-CC12-0037.0000
P	GRACE A. & ELAINE M. MORRIS	04-CC12-0056.0000
Q	CROSS CREEK TENT CEMETERY ASSOCIATION	04-CC12-0057.0001
R	UNITED PRESBYTERIAN CHURCH	04-CC12-0057.0000
S	JOSEPH JOHN & FRANCIS ANN OLENICK	04-CC12-0058.0000
T	LANTZ KEYSTONE TRUST	04-C12J-0025.0000
U	JOANNE E. DOBRZANSKI	04-C12K-0012.0000
V	MARK J. IRVIN	04-C12K-0013.0000
W	CHARLOTTE A. VILGA	04-C12J-0023.0000
X	DONALD L. & LISA J. COZAD JR.	04-C12J-0022.0000
Y	WILLIAM WILLIS	04-C12K-0009.0000
Z	JAMES MICHAEL & HEATHER MARIE VOJVODICH	04-C12K-0008.0000
AA	KATHRYN J. FELICI	04-C12K-0001.0000
AB	THOMAS E. & MADELINE MOFFIT	04-C12J-0017.0000
AC	DIANE A. HOWELL & JEAN L. WALDEN	04-C12J-0018.0000
AD	JACK L. & MARJORIE C. COPENHAVER	04-C12J-0060.0000
AE	ALBERT VUILLER & SANDRA L. LABUTE	04-C12J-0016.0000
AF	JACK L. & MARJORIE C. COPENHAVER	04-C12J-0059.0000
AG	NANCY PETREL	04-C12J-0011.0000
AH	MICHAEL D. & LIANNA L. WADE	04-C12J-0015.0000
AI	WILLIAM COLUMBO	04-C12J-0009.0000
AJ	SHAUM M. WELSHANS	04-C12J-0008.0000
AK	WILLIAM COLUMBO	04-C12J-0007.0000
AL	WILLIAM L. & CHRISTINE M. MITCHELL	04-CC12-0003.0000
AM	SHARON LYNN DAVIS & MICHELLE RENEA	04-CC12-0004.0000
AN	GEORGE SCOTT RICE & AMY JOY MCGARY	04-CC12-0059.0000
AO	THOMAS J. & PAMELA K. SZYMANEK	04-CC12-0061.0000
AP	DORIS D. JONES	04-CC11-0078.0000
AQ	DONNA MERRIFIELD & ROXANN L. ROBINSON	04-CC12-0010.0000
AR	WEST VIRGINIA DEPT. OF HIGHWAYS	04-CC8N-0106.0000

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
AS	CHRISTOPHER S. & SARAH E. BAYARDI	04-CC8N-0079.0000
AT	RICHARD A. BAILEY	04-CC8N-0079.0006
AU	JOHN W. FOX	04-CC8N-0092.0000
AV	JOHN W. FOX	04-CC8N-0091.0000
AW	COLLIERS METHODIST CHURCH	04-CC8N-0090.0000
AX	UNITED METHODIST CHURCH	04-CC8N-0089.0000
AY	UNITED METHODIST CHURCH	04-CC8N-0088.0000
AZ	COLLIERS UNITED METHODIST CHURCH	04-CC8N-0087.0005
BA	MEIR DADDOUSH	04-CC8N-0083.0000
BB	CHRISTINE SIMMONS	04-CC8N-0082.0000
BC	CHRISTINE SIMMONS	04-CC8N-0081.0000
BD	COLLIERS VOLUNTEER FIRE DEPARTMENT	04-CC8N-0080.0000
BE	COLLIERS VOLUNTEER FIRE DEPARTMENT	04-CC8N-0079.0002
BF	COLUMBIA GAS	04-CC8N-0041.0000
BG	COLLIERS VOLUNTEER FIRE DEPARTMENT	04-CC8N-0042.0000
BH	COLLIERS VOLUNTEER FIRE DEPARTMENT	04-CC8N-0079.0001
BI	GEORGE M. ATEN	04-CC8N-0043.0000
BJ	GEORGE M. ATEN	04-CC8N-0078.0000
BK	PATRICK & NORA K. BOYLES	04-CC8N-0072.0000
BL	ETHAN R. HARRIS	04-CC8N-0072.0001
BM	DEBRA LYNN ROCCHIO	04-CC8N-0068.0000
BN	MARK FORRESTER	04-CC8N-0053.0000
BO	JAMES R. BINGIEL	04-CC8N-0064.0000
BP	JAMES R. BINGIEL	04-CC8N-0063.0000
BQ	MICHAEL E. & HEATHER S. BAGGUS	04-CC8N-0054.0000
BR	ERIC J. & LORI A. ROBEY	04-CC8N-0051.0000
BS	JOANNA MARLEEN AYERS	04-CC8N-0047.0000
BT	JOANNA MARLEEN AYERS	04-CC8N-0046.0000
BU	PEARL ARIA	04-CC8N-0002.0000
BV	HARLEY WARRICK	04-C12F-0014.0000
BW	BONNIE A. BULLOCK	04-C12F-0018.0000
BX	BONNIE A. BULLOCK	04-C12F-0019.0000
BY	FRED WELSHANS JR. & CHRIS E. WELSHANS	04-C12K-0025.0000
BZ	CHARLES LEROY & MARCIA JOAN RICHTER	04-C12K-0024.0000
CA	WARREN RAY & CHERYL L. JOHNSON	04-C12K-0018.0000
CB	WARREN RAY & CHERYL L. JOHNSON	04-C12K-0016.0000
CC	JAMIE LEE & DANNALYN VAN HORN	04-C12K-0015.0000
CD	ROBERT C. & BARBARA A. HASPEL	04-C12K-0019.0000
CE	FRED WELSHANS JR. & CHRIS E. WELSHANS	04-C12K-0030.0000
CF	KEITH L. & FRANCES RICE	04-C12K-0031.0000
CG	KEITH L. & FRANCES RICE	04-C12K-0032.0000
CH	ALLEN JOHNSON & CHARLES WARREN ETAL	04-C12K-0033.0000
CI	CHARLES & LINDA SCOPEL	04-C12K-0034.0000
CJ	TERRY L. & SUSAN F. WELCH	04-C12K-0041.0000
CK	RICHIE W. & THELMA A. MILLS	04-C12K-0042.0000
CL	RICHARD ALVIN ZAMBARDA	04-C12K-0043.0000
CM	MARGARET FRESHWATER	04-C12K-0075.0000
CN	KEITH E. & JODY L. CARPENTER	04-C12K-0077.0000
CO	GOULD FAMILY TRUST OF 2013	38-0008-0018.0000
CP	ARTHUR C. MCDERMIT	38-0008-0007.0001

REVISIONS:

COMPANY:

**SWN**  
Production Company, LLC

**SWN** <sup>R</sup>/<sub>A</sub> <sup>V</sup>/<sub>+</sub>  
Production Company™

OPERATOR'S

STATE OF WV DNR B BRK

WELL #:

5H

DISTRICT:

CROSS CREEK

COUNTY:

BROOKE

STATE:

WV

DATE: 05-29-2019

API NO: 47-009-00252

DRAWN BY: D. REED

SCALE: N/A

DRAWING NO: 2017-541

WELL LOCATION PLAT

PROPERTY NUMBER 2501166552

PAD ID 3001155614