

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

API 47-069-00325 County OHIO District LIBERTY  
Quad BETHANY Pad Name SHAWN COUCH -OHI-PAD1 Field/Pool Name PANHANDLE FIELD WET  
Farm name SHAWN W. COUCH (TRUST) Well Number SHAWN COUCH OHI 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 4,444,248.63 Easting 535,033.08  
Landing Point of Curve Northing 4,444,327.60 Easting 535,203.51  
Bottom Hole Northing 4,447,428.85 Easting 533,985.54

Elevation (ft) 1,246.7' 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 2/27/2020 Date drilling commenced 4/5/2020 Date drilling ceased 4/16/2020  
Date completion activities began 6/19/2020 Date completion activities ceased 7/17/2020  
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 316' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 611' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 479' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by: \_\_\_\_\_

API 47-069 - 00325 Farm name SHAWN W. COUCH (TRUST) Well number SHAWN COUCH OHI 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	417	NEW	J-55/54.50#		Y; 28 BBLS
Coal	SEE INTERMEDIATE						
Intermediate 1	12.25	9.625	1,871	NEW	J-55/36#		Y; 26 BBLS
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	17,613	NEW	HCP-110/20#		Y; 30 BBLS
Tubing		2.375	6,565	NEW	P-110/6.5#		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	420	15.60	1.20	504	SURFACE	8
Coal	SEE INTERMEDIATE						
Intermediate 1	CLASS A	658	15.60	1.19	783.02	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	222/3,114	14.00/15.60	1.52/1.19	337.44/3,705.66	SURFACE	24
Tubing							

Drillers TD (ft) 17,613' Loggers TD (ft) 17,613'

Deepest formation penetrated MARCELLUS Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 5,429'

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 \_\_\_\_\_

API 47-069 - 00325 Farm name SHAWN W. COUCH (TRUST) Well number SHAWN COUCH OHI 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				

Please insert additional pages as applicable.

API 47- 069 - 00325 Farm name SHAWN W. COUCH (TRUST) Well number SHAWN COUCH OHI 5H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>MARCELLUS</u>	<u>6,182'</u>	<u>TVD</u>	<u>6,433'</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 993 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas 6,000 mcfpd Oil 919 bpd NGL \_\_\_\_\_ bpd Water 408 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 <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	<u>0</u>		<u>0</u>		
	<u>SEE</u>	<u>ATTACHMENT</u>	<u>3</u>		

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 SCHLUMBERGER WELL SERVICES  
Address 110 SCHLUMBERGER DRIVE City SUGAR LAND State TX Zip 77478

Stimulating Company HALLIBURTON ENERGY SERVICES  
Address 14851 MILNER ROAD, GATE 5A City HOUSTON State TX Zip 77032

Please insert additional pages as applicable.

Completed by Elizabeth Gee Telephone 832-796-2873  
Signature *Elizabeth Gee* Title Staff Regulatory Analyst Date 10/05/2020

**SHAWN COUCH OHI 5H  
ATTACHMENT 1  
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	6/3/2020	17,550	17,465	36
2	6/19/2020	17,429	17,250	36
3	6/20/2020	17,218	17,037	36
4	6/20/2020	17,003	16,824	36
5	6/20/2020	16,790	16,611	36
6	6/20/2020	16,577	16,398	36
7	6/21/2020	16,364	16,185	36
8	6/21/2020	16,151	15,973	36
9	6/22/2020	15,938	15,759	36
10	6/22/2020	15,725	15,546	36
11	6/23/2020	15,512	15,333	36
12	6/23/2020	15,299	15,120	36
13	6/23/2020	15,086	14,903	36
14	6/24/2020	14,873	14,694	36
15	6/24/2020	14,659	14,481	36
16	6/25/2020	14,447	14,268	36
17	6/25/2020	14,234	14,055	36
18	6/25/2020	14,021	13,842	36
19	6/26/2020	13,808	13,629	36
20	6/26/2020	13,595	13,416	36
21	6/27/2020	13,382	13,206	36
22	6/28/2020	13,169	12,987	36
23	6/29/2020	12,959	12,777	36
24	6/29/2020	12,743	12,564	36
25	6/29/2020	12,530	12,351	36
26	6/30/2020	12,317	12,138	36
27	7/1/2020	12,104	11,921	36
28	7/1/2020	11,893	11,712	36
29	7/1/2020	11,678	11,499	36
30	7/2/2020	11,465	11,286	36
31	7/2/2020	11,252	11,073	36
32	7/3/2020	11,039	10,858	30
33	7/3/2020	10,827	10,647	30
34	7/3/2020	10,611	10,434	30
35	7/4/2020	10,400	10,221	30
36	7/4/2020	10,187	10,004	30
37	7/4/2020	9,975	9,795	30
38	7/5/2020	9,761	9,582	30
39	7/5/2020	9,548	9,369	30
40	7/6/2020	9,335	9,152	30
41	7/6/2020	9,122	8,943	36
42	7/6/2020	8,909	8,730	30
43	7/7/2020	8,696	8,517	30
44	7/7/2020	8,483	8,304	33

SHAWN COUCH OHI 5H

ATTACHMENT 2

STIM REPORT

STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown		Amount of Proppant (lbs)	Amount of water bbls	Amount of nitrogen/other
				Pressure (PSI)	ISIP (PSI)			
1	6/19/2020	85.1	8,020	8,234	3,973	231,874	7,489	0
2	6/19/2020	96.4	8,104	5,329	4,149	320,000	9,741	0
3	6/20/2020	93	7,986	5,841	4,340	319,520	9,560	0
4	6/20/2020	98.7	8,148	5,221	4,145	319,820	10,236	0
5	6/20/2020	94.4	8,233	6,288	4,243	319,760	9,238	0
6	6/21/2020	94.9	8,096	5,433	4,335	319,980	8,902	0
7	6/21/2020	96.3	8,041	5,431	4,309	299,380	9,056	0
8	6/22/2020	96.7	8,337	5,412	4,270	319,560	8,706	0
9	6/22/2020	98	8,088	5,032	4,294	319,580	8,976	0
10	6/22/2020	99.4	8,160	6,554	4,234	320,320	8,387	0
11	6/23/2020	96.9	7,890	5,554	4,457	318,660	9,043	0
12	6/23/2020	98.6	8,173	5,610	4,166	320,000	9,381	0
13	6/24/2020	97.8	8,113	4,710	4,066	319,160	9,075	0
14	6/24/2020	97.6	7,995	6,334	4,221	320,600	8,772	0
15	6/25/2020	98.8	7,837	6,156	4,348	319,000	8,880	0
16	6/25/2020	98.8	7,916	5,974	4,276	319,700	8,836	0
17	6/25/2020	98.7	7,874	5,457	4,414	320,000	8,616	0
18	6/26/2020	97.6	7,957	5,892	4,312	319,660	8,931	0
19	6/26/2020	99.1	7,853	6,057	4,429	320,220	8,688	0
20	6/26/2020	100	7,864	5,785	4,284	320,020	8,588	0
21	6/28/2020	99.4	7,708	5,802	4,294	320,760	9,033	0
22	6/29/2020	100.2	7,776	5,958	4,265	321,380	8,255	0
23	6/29/2020	98.3	7,673	5,901	4,397	319,700	8,614	0
24	6/29/2020	99.4	7,657	5,574	4,441	320,380	8,116	0
25	6/30/2020	94	7,446	5,363	4,378	320,200	8,802	0
26	7/1/2020	98.9	7,553	5,715	4,272	320,340	8,501	0
27	7/1/2020	98.4	7,546	6,105	4,240	319,760	8,753	0
28	7/1/2020	100.4	7,798	5,799	4,223	319,560	8,287	0
29	7/2/2020	96.3	7,562	5,483	4,213	319,380	9,456	0
30	7/2/2020	96.4	7,529	5,929	4,320	319,320	8,489	0
31	7/2/2020	99.8	7,656	5,365	4,197	320,260	8,219	0
32	7/3/2020	96	7,459	5,967	4,232	320,220	8,323	0
33	7/3/2020	99.5	7,494	5,455	4,264	320,860	8,167	0
34	7/4/2020	98.6	7,790	5,493	4,166	319,680	8,219	0
35	7/4/2020	95.7	7,296	5,972	4,281	320,300	8,715	0
36	7/4/2020	100.1	7,619	4,352	4,311	320,420	8,291	0
37	7/5/2020	96.5	7,453	5,655	4,453	319,220	9,520	0
38	7/5/2020	88.3	7,199	5,968	4,175	319,540	8,266	0
39	7/5/2020	98.3	7,721	5,623	4,274	320,000	8,054	0
40	7/6/2020	82.9	7,696	5,841	4,312	318,760	8,684	0
41	7/6/2020	98.3	7,451	5,536	4,232	319,380	8,291	0
42	7/7/2020	78.8	7,745	5,615	4,238	319,340	8,183	0
43	7/7/2020	94.5	7,124	5,482	4,513	319,060	8,504	0
44	7/7/2020	96.9	7,136	5,936	4,260	320,420	10,073	0
45	7/8/2020	98.6	7,331	5,668	4,362	320,100	8,588	0
46	7/8/2020	99.2	7,115	5,708	4,357	320,560	8,531	0
47	7/8/2020	99.2	7,131	5,779	4,383	320,500	8,467	0
48	7/8/2020	99.2	6,978	3,902	4,343	320,700	8,520	0
49	7/9/2020	99.2	7,221	5,537	4,375	319,720	8,429	0
50	7/9/2020	98.2	7,051	5,538	4,395	320,180	8,967	0
51	7/9/2020	98.6	6,962	5,389	4,335	320,120	8,282	0
52	7/9/2020	99.3	7,237	5,601	4,307	321,000	8,580	0

45	7/7/2020	8,270	8,094	32
46	7/8/2020	8,057	7,878	30
47	7/8/2020	7,848	7,665	30
48	7/8/2020	7,631	7,452	30
49	7/8/2020	7,418	7,239	30
50	7/9/2020	7,205	7,026	30
51	7/9/2020	6,992	6,813	30
52	7/9/2020	6,779	6,600	31



Well Name: **Shawn Couch OHI 5H** **47069003080000**

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	316.00	316.00	
Top of Salt Water	611.00	611.00	NA	NA	
Pittsburgh Coal	479.00	479.00	484.00	484.00	
Pottsville (ss)	620.00	620.00	964.00	964.00	
Raven Cliff (ss)	964.00	964.00	1623.00	1623.00	
Big Injun (ss)	1623.00	1623.00	2198.00	2190.00	
Berea (siltstone)	2198.00	2190.00	5717.00	5636.00	
Rhinestreet (shale)	5717.00	5636.00	6054.00	5947.00	
Middlesex (shale)	6054.00	5947.00	6146.00	6020.00	
Burket (shale)	6146.00	6020.00	6168.00	6036.00	
Tully (ls)	6168.00	6036.00	6236.00	6083.00	
Mahantango (shale)	6236.00	6083.00	6433.00	6182.00	
Marcellus (shale)	6433.00	6182.00	NA	NA	GAS



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/19/2020
Job End Date:	7/9/2020
State:	West Virginia
County:	Ohio
API Number:	47-069-00325-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Shawn Couch OHI 5H
Latitude:	40.14785200
Longitude:	-80.58869500
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,219
Total Base Water Volume (gal):	18,943,323
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	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	89.98668	Density = 8.34
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.22874	

Sand-Premium White-40/70	Halliburton	Proppant									
						Listed Below					
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent									
						Listed Below					
MC MX 8-4743	MultiChem	Additive									
						Listed Below					
HAI-501	Halliburton	Acid Corrosion Inhibitor									
						Listed Below					
LEGEND(TM) LD-7750W	MultiChem	Scale Control									
						Listed Below					
LD-2950	MultiChem	Friction Reducer									
						Listed Below					
FE-2A	Halliburton	Additive									
						Listed Below					
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant									
						Listed Below					
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	9.44573		

				Complex Amine Compound	Proprietary	60.00000	0.05111	
				Hydrochloric acid	7647-01-0	30.00000	0.03988	
				Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02555	
				Sodium nitrate	7631-99-4	60.00000	0.02133	
				Methanol	67-56-1	100.00000	0.00540	
				Ethoxylated alcohols	Proprietary	5.00000	0.00426	
				Citric acid	77-92-9	60.00000	0.00199	
				Sodium molybdate	10102-40-6	5.00000	0.00178	
				Poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, branched	69011-36-5	1.00000	0.00085	
				Adipic acid	124-04-9	1.00000	0.00085	
				Sodium chloride	7647-14-5	5.00000	0.00047	
				Phosphoric Acid Salt	Proprietary	5.00000	0.00043	
				Modified thiourea polymer	Proprietary	30.00000	0.00007	
				Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00007	
				Sodium lactate	72-17-3	0.10000	0.00004	
				Sodium acetate	127-09-3	0.10000	0.00004	
				Monopotassium phosphate	7778-77-0	0.10000	0.00004	
				Yeast extract	8013-01-2	0.10000	0.00004	
				Propargyl alcohol	107-19-7	5.00000	0.00001	
				Formaldehyde	50-00-0	0.10000	0.00001	
				Hexadecene	629-73-2	5.00000	0.00001	
				Ethoxylated alcohols	Proprietary	5.00000	0.00001	

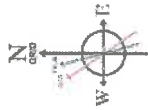
\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water  
\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%.  
\*\*\* If you are calculating a percentage of total ingredients do not 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)

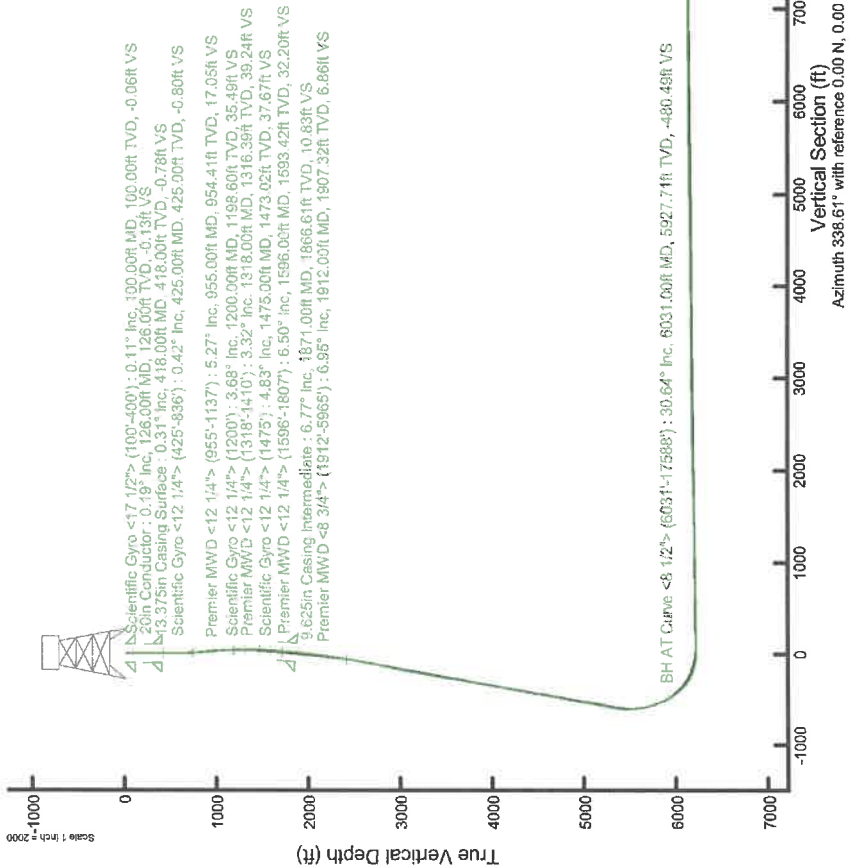
# SWN PRODUCTION COMPANY, LLC

Location: Ohio County, WV  
 Field: Ohio  
 Facility: **Shawn Couch OHI Pad**  
 Slot: Slot #05  
 Well: **Shawn Couch OHI 5H**  
 Wellbore: **Shawn Couch OHI 5H PWB**

Foot reference weight to Shawn Couch OHI 5H PWB Rev-A-0	Grid System: NAD83 / UTM Zone 17 North, US Feet
True vertical depths are referenced to SDC 42 (KB)	North Reference: Grid North
Reference weight measured depths are referenced to SDC 42 (KB)	Scale: True distance
SDC 42 (KB) to Mean Sea Level: 1272.8 ft	Coordinates are in feet referenced to SW
Mean Sea Level to Ground level (At Slot #05): -1246.8 ft	Depths are in feet
Offset weight MDs are referenced to each well's default MD datum	Created by: <i>alan@swp.com</i> on 2020-04-13 10:43:00 AM EDT, EASTERN US, Datm



User specified Dip: 87.35° Field: 52.034° NT  
 Magnetic North is 8.22 degrees West of True North (at 450020ft)  
 True North is 8.22 degrees West of Magnetic North (at 450020ft)  
 To correct surface from True to Grid subtract 8.22 degrees  
 To correct azimuth from Magnetic to Grid subtract 8.49 degrees

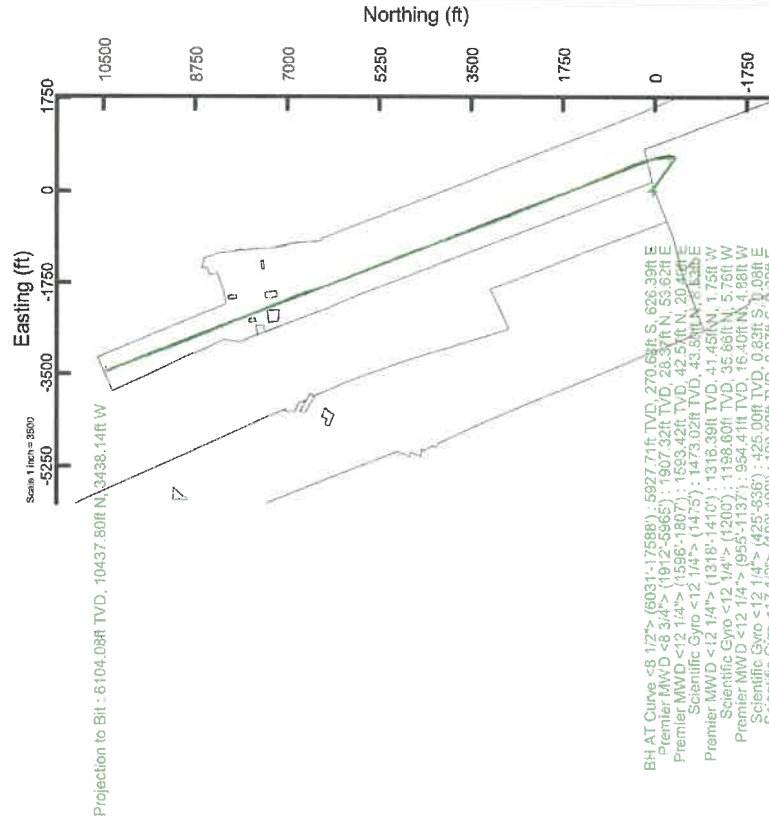


- Scientific Gyro <17 1/2"> (1001-5001) : 0.11° Inc, 100.00ft MD, 100.00ft TVD, -0.06ft VS
- 20in Conductor : 0.19° Inc, 126.00ft MD, 126.00ft TVD, -0.13ft VS
- 43.375in Casing Surface : 0.31° Inc, 418.00ft MD, 418.00ft TVD, -0.78ft VS
- Scientific Gyro <12 1/4"> (425-836) : 0.42° Inc, 425.00ft MD, 425.00ft TVD, -0.80ft VS
- Premier MWD <12 1/4"> (955-1137) : 5.27° Inc, 955.00ft MD, 954.41ft TVD, 17.05ft VS
- Scientific Gyro <12 1/4"> (12001) : 3.68° Inc, 1200.00ft MD, 1198.60ft TVD, 35.49ft VS
- Premier MWD <12 1/4"> (1318-1410) : 3.32° Inc, 1318.00ft MD, 1316.38ft TVD, 39.24ft VS
- Scientific Gyro <12 1/4"> (1475) : 4.83° Inc, 1475.00ft MD, 1473.02ft TVD, 37.67ft VS
- Premier MWD <12 1/4"> (1596-1807) : 6.50° Inc, 1596.00ft MD, 1593.42ft TVD, 32.20ft VS
- 3.625in Casing Intermediate : 6.77° Inc, 1871.00ft MD, 1866.61ft TVD, 10.83ft VS
- Premier MWD <8 3/4"> (1912-5965) : 6.95° Inc, 1912.00ft MD, 1907.32ft TVD, 6.66ft VS

## Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Shawn Couch OHI Pad	1755367.233	14580844.955	40°08'52.3250"N	80°35'19.1360"W
Slot	Local E (ft)	Grid East (US ft)	Latitude	Longitude
Slot #05	-5.91	1755354.367	40°08'52.2672"N	80°35'19.3021"W
SDC 42 (KB) to Ground level (At Slot #05)	-12.87	14580839.049	28ft	
Mean Sea Level to Ground level (At Slot #05)			-1246.8ft	
SDC 42 (KB) to Mean Sea Level			1272.8ft	

API: 47-069-00325-0000  
 BH Job #: 110346062A  
 Rig: SDC 42  
 Duration: 04/10/2020 - 04/13/2020



- BH AT Curve <8 1/2"> (6031-17588) : 5927.74ft TVD, 270.68ft S, 626.39ft E
- Premier MWD <12 1/4"> (1097-3865) : 1097.32ft TVD, 28.37ft N, 55.62ft E
- Scientific Gyro <12 1/4"> (1475) : 1475.00ft TVD, 43.81ft N, 20.00ft E
- Scientific Gyro <12 1/4"> (1475) : 1473.02ft TVD, 43.81ft N, 20.00ft E
- Premier MWD <12 1/4"> (1318-1410) : 1316.38ft TVD, 41.45ft N, 1.75ft W
- Scientific Gyro <12 1/4"> (12001) : 1198.60ft TVD, 35.49ft N, 5.76ft W
- Premier MWD <12 1/4"> (1596-1807) : 1593.42ft TVD, 16.40ft N, 4.98ft W
- Scientific Gyro <12 1/4"> (425-836) : 425.00ft TVD, 0.83ft S, 0.08ft E
- Scientific Gyro <17 1/2"> (1001-5001) : 100.00ft TVD, 0.07ft S, 0.00ft E

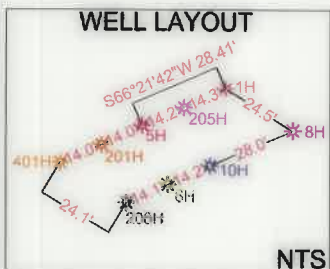
LATITUDE: 40°10'00" SURFACE HOLE |←1560'

LATITUDE: 40°12'30" BOTTOM HOLE |←4947'



www.jhacompanies.com

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



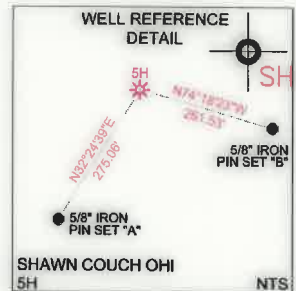
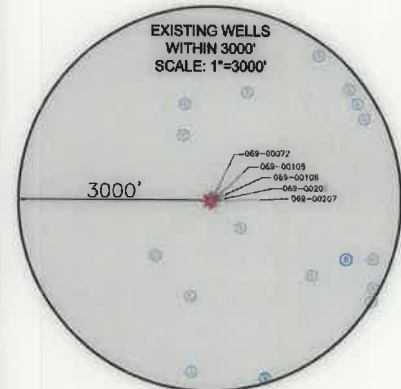
AS-DRILLED  
BOTTOM HOLE  
PROPOSED  
BOTTOM HOLE

NOTES ON SURVEY

1. COORDINATE SYSTEM IS UTM NAD 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 PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
4. NO DWELLINGS OR BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF PAD
5. NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
6. NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF THE LIMITS OF DISTURBANCE.
7. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.

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

LINE	BEARING	DISTANCE
L1	S53°04'30"W	1739.40'
L2	S57°29'55"W	1591.93'



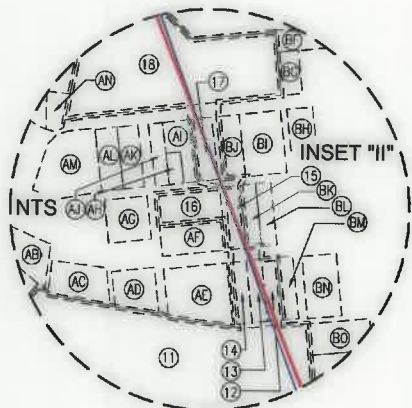
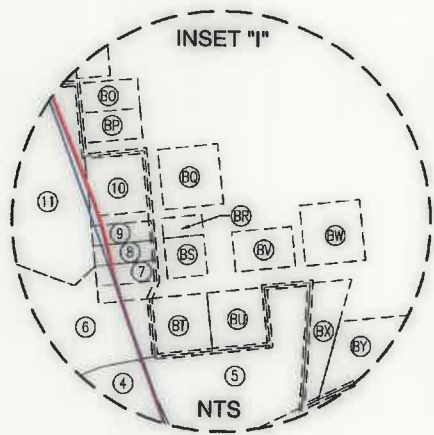
<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4444248.63 EASTING: 535033.08
<b>LANDING POINT LOCATION (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4444327.60 EASTING: 535203.51
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4447428.85 EASTING: 533985.54
<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4444248.63 EASTING: 535033.08
<b>LANDING POINT LOCATION (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4444362.96 EASTING: 535184.13
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4447428.23 EASTING: 533983.58

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 SWN  
Production Company, LLC Production Company™

WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034	(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  MINIMUM DEGREE OF ACCURACY: 1/200  PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)	SHAWN COUCH OHI OPERATOR'S WELL #: 5H API WELL #: 47 069 00325 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: UPPER OHIO SOUTH DISTRICT: LIBERTY COUNTY: OHIO SURFACE OWNER: SHAWN W. COUCH (TRUST) OIL & GAS ROYALTY OWNER: LL&B HEADWATER II, LP & RESOURCE MINERALS HEADWATER I, LP
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 TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,221' TVD 17,613' TMD	WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: 1300 FORT PIERPONT DRIVE, SUITE 201 CITY: MORGANTOWN STATE: WV ZIP CODE: 26508	DESIGNATED AGENT: BRITTANY WOODY ADDRESS: 1300 FORT PIERPONT DRIVE, SUITE 201 CITY: MORGANTOWN STATE: WV ZIP CODE: 26508
<b>LEGEND:</b> ● EXISTING BOTTOM HOLE * EXISTING / PRODUCING WELLHEAD LPL * EXISTING LANDING POINT LOCATION ● PROPOSED SURFACE HOLE / BOTTOM HOLE LPL * PROPOSED LANDING POINT LOCATION — ACCESS ROAD — PUBLIC ROAD FLOOD PLAIN --- LEASE BOUNDARY --- AS DRILLED PATH --- PROPOSED PATH	<b>REVISIONS:</b> DATE: 06-03-2020 API NO: 47-069-00325 DRAWN BY: R. GRIMES SCALE: 1" = 2000' DRAWING NO: 2019-0523 WELL LOCATION PLAT	



**WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS**

TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	SHAWN W. COUCH (TRUST) (S) LL&B HEADWATER II, LP & RESOURCE MINERALS HEADWATER I, LP (R)	03-L4-110.0
TRACT	SURFACE OWNER	TAX PARCEL
2	STEVEN M. & LORI J. MCCLUMPHY	03-L4-110.3
3	THE BOARD OF GOVERNORS OF WEST LIBERTY UNIVERSITY	03-L1-35.0
4	THE BOARD OF GOVERNORS OF WEST LIBERTY UNIVERSITY	09-WL7-30.1
5	WHEELING ELECTRIC COMPANY	09-WL7-30.3
6	THE BOARD OF GOVERNORS OF WEST LIBERTY UNIVERSITY	03-L1-35.8
7	HESTER S. & PHILLIP PELLE, C/O SAM PELLE	09-WL7-26.0
8	RICKY L. GOOCH	09-WL7-25.0
9	HESTER S. & PHILLIP PELLE, C/O SAM PELLE	09-WL7-24.0
10	JEANNE V. SCHRAMM	09-WL7-1.0
11	PRALL CEMETERY	09-WL3-127.0
12	LORA L. APPLEBY	09-WL3-111.0
13	BRITTANY N. HUNTER	09-WL3-112.0
14	BRITTANY N. HUNTER	09-WL3-113.0
15	HURLEY-BRYAN PROPERTIES, INC	09-WL3-82.0
16	ALVIN O., JR. & DELORES A. HUNTER	09-WL3-79.0
17	RONALD A. WITT, JR.	09-WL3-44.0
18	OHIO COUNTY BOARD OF EDUCATION	09-WL3-7.0
19	DEREK J. & NICOLE L. ENNIS	03-L1-4.2

**ADJOINING OWNERS TABLE**

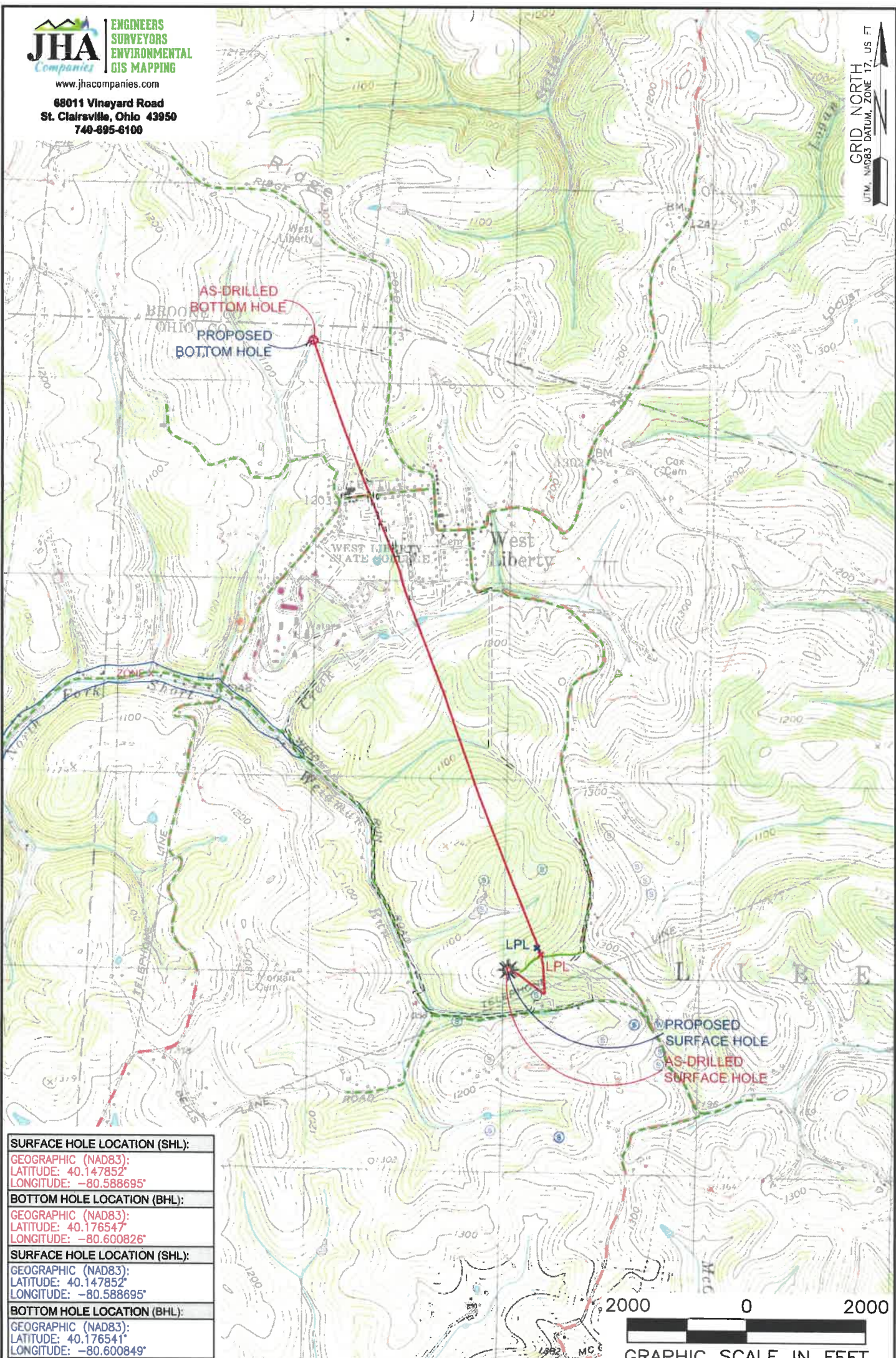
TRACT	SURFACE OWNER	TAX PARCEL
A	APPALACHIAN MIDSTREAM SERVICES, LLC	03-L4-117.0
B	WINDSOR POWER HOUSE COAL COMPANY	03-L4-105.7
C	B.G. RIDLER & J.M. TALLMON	03-L4-113.0
D	DONALD E. GILBERT, JR	03-L4-112.0
E	B.G. RIDLER & J.M. TALLMON	03-L4-106.0
F	DIXIE M. & L. LAUDERMILT	03-L4-106.1
G	HOLLAND PARK LIMITED LIABILITY	03-L4-105.0
H	ELIZABETH HONECKER (L/E: JANET HONECKER)	03-L4-104.0
I	DENNY A. WARNER	03-L4-104.5
J	JASON O. HUNTER	03-L4-104.1
K	JASON O. HUNTER	03-L4-104.2
L	JANET L. HONECKER & ELIZABETH HONECKER	03-L4-103.0
M	TIMOTHY L. MONROE & ET AL	09-WL10-11.0
N	JOHN C. & MARY P. PERRY	09-WL10-14.0
O	FOWLCON LIMITED LIABILITY COMPANY	09-WL10-13.0
P	THE BOARD OF GOVERNORS OF WEST LIBERTY UNIVERSITY	03-L1-35.4
Q	THE BOARD OF GOVERNORS OF WEST LIBERTY UNIVERSITY	03-L1-35.1

**ADJOINING OWNERS TABLE**

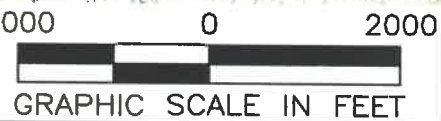
TRACT	SURFACE OWNER	TAX PARCEL
R	BOARD OF EDUCATION	09-WL7-30.2
S	THE BOARD OF GOVERNORS OF WEST LIBERTY UNIVERSITY	03-L1-35.9
T	THE BOARD OF GOVERNORS OF WEST LIBERTY UNIVERSITY	03-L1-35.5
U	THE BOARD OF GOVERNORS OF WEST LIBERTY UNIVERSITY	03-L1-35.6
V	THE BOARD OF GOVERNORS OF WEST LIBERTY UNIVERSITY	03-L1-35.7
W	THE BOARD OF GOVERNORS OF WEST LIBERTY UNIVERSITY	09-WL3-65.0
X	LEON W. & O.S. TURNER	09-WL3-66.0
Y	LEON W. & O.S. TURNER	09-WL3-66.0
Z	GREGORY R. DEENIS & META M. LASCH	09-WL3-67.0
AA	STATE BOARD OF EDUCATION	09-WL3-68.0
AB	CRAIG CONWAY	09-WL3-69.1
AC	MATTHEW P. & TAMARA A. BONAR	09-WL3-74.0
AD	BALL HOLDINGS, LLC	09-WL3-74.1
AE	RENEE L. POSTLEWAIT	09-WL3-114.0
AF	JOSEPH M. BEAVER	09-WL3-80.0
AG	JOHN & KIMBERLY TANKOVITS	09-WL3-73.2
AH	ALVIN O., JR. & DELORES A. HUNTER	09-WL3-45.1
AI	MARY ANN MAXWELL (L/E: PEGGY MAXWELL)	09-WL3-45.0
AJ	DENNIS J. & JOYCE L. ARNOLD	09-WL3-47.0
AK	DENNIS J. & JOYCE L. ARNOLD	09-WL3-48.0
AL	GEORGE L. & E.F. SMITH	09-WL3-49.0
AM	CHRISTIAN CHURCH AT WEST LIBERTY, TRUSTEES	09-WL3-50.0
AN	MASONIC LODGE 26 A.F.A.A.M.	09-WL3-6.0
AO	ENNIS PROPERTIES, LLC	03-L1-4.4
AP	FRANK BLASKOVICH, JR. & JENNIFER D. BLASKOVICH	09-WL3-1.0
AQ	CHARLES BONAR	03-L1-21.1
AR	MATTHEW P. BONAR	03-L1-21.3
AS	CHARLES BONAR	03-L1-4.0
AT	DEREK J. & NICOLE ENNIS	03-L1-43.0
AU	CHILDRENS FARM TRUST	09-WL1-14.0
AV	DANIEL J. & COURTNEY D. VARGO	09-WL1-3.0
AW	JANICE J. SEYLER	09-WL1-4.0
AX	JANICE J. SEYLER	09-WL1-9.3
AY	DEBORAH J. & THOMAS W. BUKOVAC	09-WL1-9.1
AZ	DEBORAH J. & THOMAS W. BUKOVAC	09-WL1-9.0
BA	BERNARD R. PETTIT	09-WL1-10.0
BB	BERNARD R. PETTIT	09-WL1-11.0
BC	ROBERT S. & JANET L. WISE	09-WL3-127.1
BD	JERALDINE W. DAILEY	09-WL3-130.0
BE	R.L. CLARK, JR. & C.L. HLEBICZKI	09-WL3-131.0
BF	HARTLE PROPERTIES, LLC	09-WL3-8.0
BG	MATTHEW & TAMARA BONAR	09-WL3-10.0
BH	WILLIAM D. & G.A. BONAR	09-WL3-40.0
BI	HURLEY/BRYAN PROPERTIES, INC	09-WL3-41.0
BJ	MARY ANN MAXWELL (L/E: PEGGY L. MAXWELL)	09-WL3-44.1
BK	HURLEY-BRYAN PROPERTIES, INC	09-WL3-83.0
BL	HURLEY-BRYAN PROPERTIES, INC	09-WL3-84.0
BM	JAMES L. & D.L. COMER	09-WL3-110.0
BN	CHARMINE M. PAVLIC	09-WL3-109.1
BO	JEANNE V. SCHRAMM	09-WL3-117.1
BP	JEANNE V. SCHRAMM	09-WL3-117.0
BQ	RICHARD EUGENE MCCAUSLAND	09-WL7-2.0
BR	WILLIAM G. WAGNER & DEBORAH A. WAGNER	09-WL7-23.1
BS	TIMOTHY S. & KATHLEEN M. BRADLEY	09-WL7-23.0
BT	THOMAS F. & K.L. MILLER	09-WL7-28.0
BU	VIRGINIA PRITCHARD	09-WL7-29.0
BV	WESLEY E. & PATRICIA LOEW	09-WL7-20.0
BW	MORGAN L. CANTWELL	09-WL7-19.0
BX	DAVID T. READ	09-WL7-30.0
BY	K.L. & R.M. FOWLER	09-WL7-31.0
BZ	SCOTTIE W. & CONNIE M. GRAHAM	09-WL7-16.1
CA	KIMBERLY ANN CUSTER	03-L1-36.0
CB	MARK W. & DAWN L. WILSON	03-L1-39.11
CC	DAVID LEE BECK	03-L1-39.7
CD	DAVID L. BECK	03-L1-39.12
CE	JAMES H. & ROBIN L. BEAVER	03-L1-39.14
CF	MARK A. DUVALL	03-L1-39.1
CG	ROBERT E. & E.C. DUVALL	03-L4-111.2
CH	JANICE QUEEN	03-L4-111.3
CI	MARK P. & ANNELEISE KAUFMAN	03-L5-2.0
CJ	ROBERT E. & E.C. DUVALL	03-L4-111.1
CK	TODD E. PORTIER	03-L4-125.0
CL	WILLIAM S. PATTERSON, JR.	03-L4-115.0
CM	MARK E. NORMAN	03-L4-110.2
CN	PAUL & RHONDA TYRNA	03-L4-114.0
CO	APPALACHIA MIDSTREAM SERVICES, LLC	03-L4-110.1

REVISIONS:


COMPANY:	SWN Production Company, LLC	SWN <sup>R</sup> <sub>A</sub> V <sup>+</sup> Production Company™
OPERATOR'S WELL #:	SHAWN COUCH OHI 5H	DATE: 06-03-2020 API NO: 47-069-00325 DRAWN BY: R. GRIMES
DISTRICT: LIBERTY	COUNTY: OHIO	SCALE: N/A DRAWING NO: 2019-0523
	STATE: WV	WELL LOCATION PLAT



<b>SURFACE HOLE LOCATION (SHL):</b>
GEOGRAPHIC (NAD83):
LATITUDE: 40.147852°
LONGITUDE: -80.588695°
<b>BOTTOM HOLE LOCATION (BHL):</b>
GEOGRAPHIC (NAD83):
LATITUDE: 40.176547°
LONGITUDE: -80.600826°
<b>SURFACE HOLE LOCATION (SHL):</b>
GEOGRAPHIC (NAD83):
LATITUDE: 40.147852°
LONGITUDE: -80.588695°
<b>BOTTOM HOLE LOCATION (BHL):</b>
GEOGRAPHIC (NAD83):
LATITUDE: 40.176541°
LONGITUDE: -80.600849°



**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.

<b>LEGEND:</b>	EXISTING BOTTOM HOLE	ACCESS ROAD
EXISTING / PRODUCING WELLHEAD	PUBLIC ROAD	FLOOD PLAN
LPLx EXISTING LANDING POINT LOCATION	LEASE BOUNDARY	ASDRILLED PATH
PROPOSED SURFACE HOLE / BOTTOM HOLE	PROPOSED PATH	
LPLx PROPOSED LANDING POINT LOCATION		

<b>WELL OPERATOR:</b> SWN PRODUCTION COMPANY, LLC	<b>WELL (FARM) NAME:</b> SHAWN COUCH OHI	<b>WELL #</b> 5H	<b>SERIAL #</b> XXXX
<b>ADDRESS:</b> 1300 FORT PIERPONT DRIVE, SUITE 201, MORGANTOWN, WV 26508	<b>COUNTY:</b> OHIO	<b>CODE:</b> 069	<b>DISTRICT:</b> LIBERTY
<b>SURFACE OWNER:</b> SHAWN W. COUCH (TRUST)	<b>USGS 7 1/2 QUADRANGLE MAP NAME:</b> BETHANY, WV		
			<b>API #</b> 47-069-00325