

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

API 47 - 069 - 00287 County OHIO District LIBERTY  
Quad BETHANY & VALLEY GROVE, WV Pad Name MICHAEL RATCLIFFE-OHI-PAD1 Field/Pool Name PANHANDLE FIELD WET  
Farm name MICHAEL T. RATCLIFFE Well Number MICHAEL RATCLIFFE OHI 6H  
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 4,444,325.98 Easting 536,873.49  
Landing Point of Curve Northing 4,444,135.76 Easting 537,040.00  
Bottom Hole Northing 4,439,311.70 Easting 539,246.69

Elevation (ft) 1281.3' 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 05/09/2018 Date drilling commenced 11/19/2018 Date drilling ceased 02/15/2019  
Date completion activities began 04/18/2019 Date completion activities ceased 06/23/2019  
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 402' Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft 755' Void(s) encountered (Y/N) depths \_\_\_\_\_  
Coal depth(s) ft 611' Cavern(s) encountered (Y/N) depths \_\_\_\_\_  
Is coal being mined in area (Y/N) N

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Reviewed  
*[Signature]* 10-16-19

Reviewed by:  
SB 10-16-19

API 47-069 - 00287 Farm name MICHAEL T. RATCLIFFE Well number MICHAEL RATLCIFFE OHI 6H

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	680	NEW	J-55/54.50#	498' / 458.7'	Y;1BBLS
Coal	SURFACE						
Intermediate 1	12.25	9.625	2,067	NEW	J-55/36#		Y; 60 BBLS
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	24,236	NEW	HCP-110/20#		Y
Tubing		2.375	6,780	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	133	15.60	1.20	159.60	SURFACE	8
Coal	SURFACE						
Intermediate 1	CLASS A	786	15.60	1.19	935.34	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	4,574	15.60	1.19	5,443.06	SURFACE	24
Tubing							

Drillers TD (ft) 24,236' Loggers TD (ft) 24,236'  
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5,779'

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

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WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

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WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

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WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_



API 47- 069 - 00287 Farm name MICHAEL T. RATCLIFFE Well number MICHAEL RATLCIFFE OHI 6H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>6,335'</u> TVD	<u>6,595'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 1652 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas \_\_\_\_\_ mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ 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 WELLS SERVICES  
 Address 110 SCHLUMBERGER DRIVE City SUGAR LAND State TX Zip 77478

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

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Completed by DENISE GRANTHAM Telephone 832-796-6139 WV Department of  
 Signature Denise Grantham Title REGULATORY TECHNICIAN Date 9/11/2019 Environmental Protection

# SOUTHWESTERN ENERGY

Location: Ohio County, WV  
 Facility: Michael Ratcliffe OH Pad Wellbore  
 Well: Michael Ratcliffe OHI 6H PWB  
 Slot: Slot 6H  
 Plot reference wellpath is Michael Ratcliffe OHI 6H PWB Rev-C: 0

True vertical depths are referenced to SDC 41 (KB)	North Reference: NAD83 / UTM Zone 17 North, US feet
Measured depths are referenced to SDC 41 (KB)	Scale: True distance
SDC 41 (KB) to Mean Sea Level: 1307.3 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot 6H): -1281.3 feet	Created by: atlenjen on 2019-03-07
Coordinates are in feet referenced to Slot	Database: WA_MPL_EASTERNUS_Dein



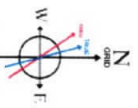
Location Information	
Facility Name	Michael Ratcliffe OHI Pad
Local N (ft)	1761519.275
Local E (ft)	-126.88
Slot 6H	61.75
SDC 41 (KB) to Ground level (At Slot: Slot 6H)	-1281.3 ft
Mean Sea Level to Ground level (At Slot: Slot 6H)	1307.3 ft
SDC 41 (KB) to Mean Sea Level	-1281.3 ft

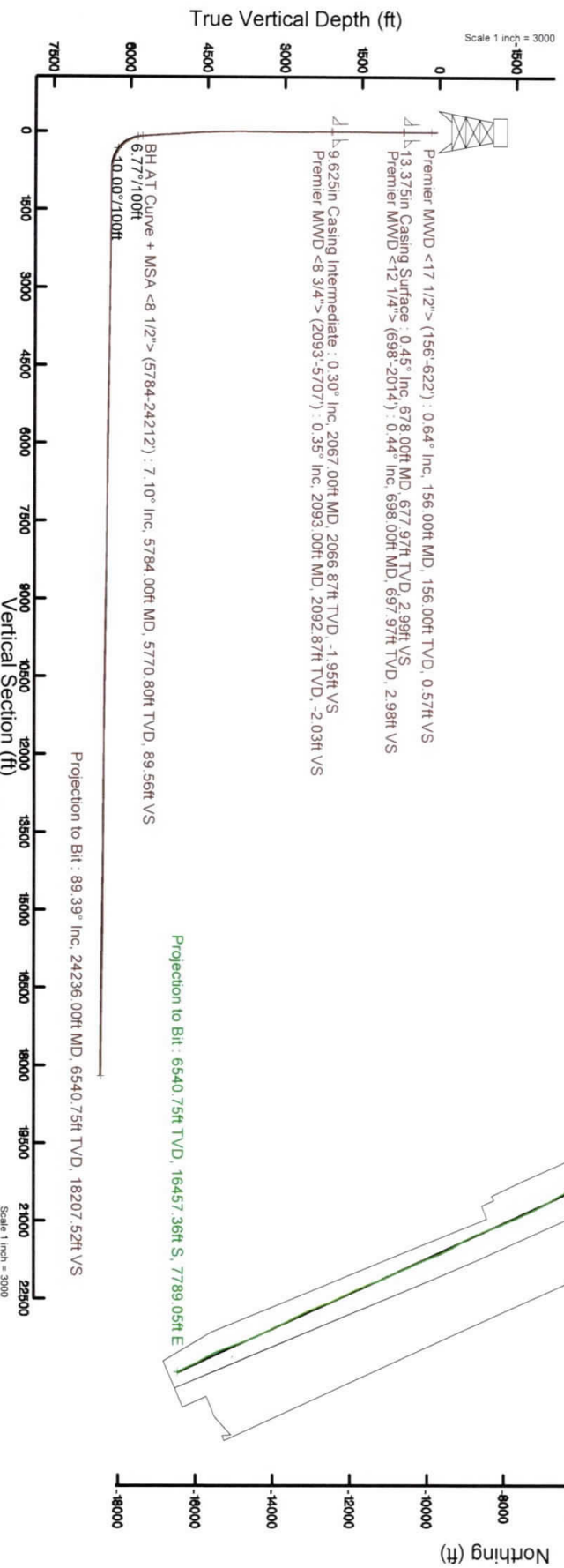
Comments	Latitude	Longitude
API: 47-069-00287-0000	40°08'53.876"N	80°33'59.872"W
BH Job #: 109607119	Latitude	Longitude
Rig SDC 41	40°08'54.492"N	80°34'51.502"W
Duration: 02/02/2019 - 02/09/2019	1297.3ft	

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Use specified Dip: 67.48° Field: 52039 n°  
 Magnetic North: 67.48 degrees West of True North (Jan 21/Jun/2019)  
 To correct azimuth from True to Grid subtract 0.28 degrees  
 To correct azimuth from Magnetic to Grid subtract 8.55 degrees



Premier MWD <17 1/2"> (156-622) : 156.00ft TVD, 0.77ft S, 0.16ft W  
 Premier MWD <12 1/4"> (698-2014) : 697.97ft TVD, 4.88ft S, 3.33ft W  
 Premier MWD <8 3/4"> (2093-5707) : 2092.87ft TVD, 3.15ft N, 1.90ft E  
 Premier MWD <8 1/2"> (5784-24212) : 5770.80ft TVD, 2.60ft S, 203.47ft E



Azimuth 154.62° with reference 0.00 N, 0.00 E

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/18/2019
Job End Date:	6/9/2019
State:	West Virginia
County:	Ohio
API Number:	47-069-02870-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Michael Ratcliffe OHI 6H
Latitude:	40.14840000
Longitude:	-80.56708400
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,455
Total Base Water Volume (gal):	30,116,511
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					
Produced Water	Halliburton	Base Fluid	Water	7732-18-5	100.00000	74.16067	Density = 8.34
			Water	7732-18-5	100.00000	12.49813	Density = 9.00

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Ingredients	Listed Above	Listed Above	Listed Above						
				Water	7732-18-5	100.00000	1.07495		
HYDROCHLORIC ACID	Halliburton	Solvent			Listed Below				
FSTI-CI-01	FSTI	Acid Corrosion Inhibitor			Listed Below				
BE-9	Halliburton	Biocide			Listed Below				
BE-9W	Halliburton	Biocide			Listed Below				
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant			Listed Below				
Excelerate LX-1	Halliburton	Friction Reducer			Listed Below				
Sand-Premium White-40/70	Halliburton	Proppant			Listed Below				
MC LD-2850	MultiChem	Friction Reducer			Listed Below				

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SCAL 10345A	Nalco	Scale Inhibitor				Listed Below			
FSTI-IC-001	FSTI	Iron Control Agent				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	12.19457	
				Hydrochloric acid		7647-01-0	7.50000	0.07781	
				Hydrotreated light petroleum distillate		64742-47-8	30.00000	0.02339	
				Ethaniminium, N,N,N-trimethyl-2-[(1-oxo-2-propen-1-yl)oxy]-, polymer chloride (1:1), polymer with 2-propenamide		69418-26-4	30.00000	0.01564	
				Polyacrylate		Proprietary	30.00000	0.00775	
				Ammonium chloride		12125-02-9	10.00000	0.00713	
				Sodium chloride		7647-14-5	10.00000	0.00650	
				Castor oil, ethoxylated		61791-12-6	10.00000	0.00521	
				Acetic acid		64-19-7	60.00000	0.00386	
				Propylene glycol		57-55-6	60.00000	0.00286	
				Alcohols, C12-16, ethoxylated		68551-12-2	5.00000	0.00261	
				9-Octadecenamide, n,n-bis-2(hydroxy-ethyl)-(Z)		93-83-4	5.00000	0.00261	
				Sorbitan monooleate polyoxyethylene derivative		9005-65-6	5.00000	0.00261	
				Citric acid		77-92-9	40.00000	0.00258	
				Ethylene glycol		107-21-1	30.00000	0.00186	
				Tributyl tetradecyl phosphonium chloride		81741-28-8	10.00000	0.00168	

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					67-56-1	80.00000	0.00148	
					Proprietary	5.00000	0.00129	
					Proprietary	5.00000	0.00129	
					Trade Secret	10.00000	0.00018	
					5064-31-3	0.10000	0.00005	
					Sodium glycollate	0.10000	0.00005	
					1,4-Dioxane	0.10000	0.00005	
					Formaldehyde	0.10000	0.00005	
					Diethanolamine	0.10000	0.00005	
					Hydroquinone monomethyl ether	0.10000	0.00005	
					Ethylenediaminetetraacetic acid, tetrasodium salt	0.10000	0.00005	

\* 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)

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**MICHAEL RATCLIFFE OHI 6H  
ATTACHMENT 1  
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	4/12/2019	24,193	24,094	36
2	4/19/2019	23,962	23,909	42
3	4/20/2019	23,863	23,811	42
4	4/20/2019	23,773	23,671	42
5	4/21/2019	23,612	23,531	42
6	4/21/2019	23,498	23,391	42
7	4/21/2019	23,358	23,251	42
8	4/22/2019	23,218	23,111	42
9	4/22/2019	23,078	22,971	42
10	4/22/2019	22,938	22,831	42
11	4/23/2019	22,798	22,691	42
12	4/23/2019	22,658	22,551	42
13	4/23/2019	22,518	22,411	42
14	4/24/2019	22,378	22,271	42
15	4/25/2019	22,238	22,131	42
16	4/25/2019	22,098	21,991	42
17	4/28/2019	21,958	21,851	42
18	4/29/2019	21,818	21,711	42
19	4/29/2019	21,678	21,571	42
20	4/30/2019	21,538	21,431	42
21	5/1/2019	21,398	21,291	42
22	5/1/2019	21,258	21,151	42
23	5/2/2019	21,118	21,011	42
24	5/2/2019	20,978	20,871	42
25	5/3/2019	20,838	20,731	42
26	5/4/2019	20,698	20,591	42
27	5/5/2019	20,558	20,451	42
28	5/6/2019	20,418	20,311	42
29	5/9/2019	20,278	20,171	42
30	5/10/2019	20,138	20,031	42
31	5/10/2019	19,998	19,891	42
32	5/11/2019	19,858	19,751	42
33	5/12/2019	19,718	19,609	42
34	5/12/2019	19,578	19,471	42
35	5/12/2019	19,438	19,331	42
36	5/13/2019	19,298	19,191	42
37	5/13/2019	19,158	19,051	42
38	5/14/2019	19,018	18,911	42
39	5/14/2019	18,878	18,771	42
40	5/15/2019	18,738	18,634	42
41	5/15/2019	18,598	18,491	42
42	5/16/2019	18,458	18,351	42
43	5/16/2019	18,318	18,211	42
44	5/16/2019	18,178	18,071	42
45	5/17/2019	18,038	17,931	42

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46	5/17/2019	17,898	17,791	42
47	5/17/2019	17,758	17,651	42
48	5/18/2019	17,618	17,511	42
49	5/18/2019	17,478	17,371	42
50	5/18/2019	17,338	17,231	42
51	5/19/2019	17,198	17,091	42
52	5/19/2019	17,058	16,951	42
53	5/19/2019	16,918	16,811	42
54	5/21/2019	16,778	16,671	42
55	5/21/2019	16,638	16,531	42
56	5/21/2019	16,498	16,391	42
57	5/21/2019	16,358	16,251	42
58	5/22/2019	16,218	16,111	42
59	5/22/2019	16,078	15,971	42
60	5/22/2019	15,938	15,831	42
61	5/22/2019	15,798	15,691	42
62	5/22/2019	15,658	15,551	42
63	5/22/2019	15,518	15,411	42
64	5/23/2019	15,378	15,271	42
65	5/23/2019	15,238	15,131	42
66	5/23/2019	15,098	14,991	42
67	5/23/2019	14,958	14,851	42
68	5/24/2019	14,818	14,711	42
69	5/24/2019	14,678	14,571	42
70	5/24/2019	14,538	14,431	42
71	5/24/2019	14,398	14,291	42
72	5/24/2019	14,258	14,151	42
73	5/25/2019	14,118	14,011	42
74	5/25/2019	13,978	13,871	42
75	5/25/2019	13,838	13,731	42
76	5/25/2019	13,698	13,591	43
77	5/25/2019	13,558	13,451	42
78	5/26/2019	13,418	13,311	42
79	5/26/2019	13,278	13,171	42
80	5/26/2019	13,138	13,031	42
81	5/26/2019	12,998	12,891	42
82	5/27/2019	12,858	12,751	42
83	5/27/2019	12,718	12,611	42
84	5/27/2019	12,578	12,471	42
85	5/28/2019	12,438	12,331	84
86	5/28/2019	12,298	12,191	42
87	5/28/2019	12,158	12,051	42
88	5/29/2019	12,018	11,911	42
89	5/29/2019	11,878	11,771	42
90	5/29/2019	11,738	11,631	42
91	5/30/2019	11,598	11,491	42
92	5/30/2019	11,458	11,351	42
93	5/30/2019	11,318	11,211	42
94	5/31/2019	11,178	11,071	42

95	5/31/2019	11,038	10,931	42
96	5/31/2019	10,898	10,791	42
97	6/1/2019	10,758	10,651	42
98	6/2/2019	10,618	10,511	42
99	6/2/2019	10,478	10,371	42
100	6/2/2019	10,338	10,231	42
101	6/3/2019	10,198	10,091	42
102	6/3/2019	10,058	9,951	42
103	6/3/2019	9,918	9,811	42
104	6/3/2019	9,778	9,671	42
105	6/4/2019	9,638	9,531	42
106	6/4/2019	9,498	9,391	42
107	6/4/2019	9,358	9,251	42
108	6/4/2019	9,218	9,111	42
109	6/5/2019	9,078	8,971	42
110	6/5/2019	8,938	8,833	42
111	6/5/2019	8,798	8,691	42
112	6/5/2019	8,658	8,551	42
113	6/6/2019	8,518	8,411	42
114	6/6/2019	8,378	8,271	42
115	6/6/2019	8,238	8,131	42
116	6/6/2019	8,098	7,991	42
117	6/7/2019	7,958	7,851	42
118	6/7/2019	7,818	7,711	42
119	6/7/2019	7,678	7,571	42
120	6/7/2019	7,538	7,431	42
121	6/8/2019	7,398	7,291	42
122	6/8/2019	7,258	7,151	42
123	6/8/2019	7,118	7,011	42
124	6/8/2019	6,978	6,871	42
125	6/8/2019	6,838	6,731	42
126	6/9/2019	6,698	6,591	42

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**MICHAEL RATCLIFFE OHI 6H  
ATTACHMENT 2  
STIM REPORT**

STAGE NUM	Stim 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
1	4/18/2019	67.6	8,122	8,290	3,594	282,000	8,551	0
2	4/19/2019	80.8	8,304	5,878	4,607	279,321	10,075	0
3	4/20/2019	72.6	8,190	5,714	4,661	280,012	9,549	0
4	4/20/2019	79.9	8,200	5,753	4,432	283,050	8,947	0
5	4/21/2019	75.7	8,253	6,059	4,355	281,590	8,838	0
6	4/21/2019	83.6	8,195	5,707	4,717	280,190	9,168	0
7	4/21/2019	81.7	8,268	5,843	5,348	279,380	8,857	0
8	4/22/2019	75.9	8,159	6,276	4,672	279,821	8,800	0
9	4/22/2019	90.1	8,270	5,027	4,861	282,475	8,952	0
10	4/22/2019	81.7	8,310	5,864	4,856	279,178	8,866	0
11	4/23/2019	83.6	8,203	5,170	4,650	278,644	8,824	0
12	4/23/2019	79.4	8,173	6,057	4,415	284,040	9,009	0
13	4/23/2019	87.5	8,422	5,936	4,813	280,007	8,869	0
14	4/24/2019	83.1	8,453	5,985	5,016	280,286	8,886	0
15	4/25/2019	81.9	8,621	6,063	4,649	281,000	8,943	0
16	4/26/2019	84.8	8,534	5,622	4,729	280,310	9,062	0
17	4/28/2019	80.9	8,186	6,497	4,727	281,080	9,035	0
18	4/29/2019	93.6	8,349	6,262	4,581	279,270	8,757	0
19	4/29/2019	84.3	8,213	6,876	4,655	280,330	8,693	0
20	4/30/2019	86.4	8,305	5,941	4,926	279,550	8,645	0
21	5/1/2019	92	8,413	6,114	4,891	279,530	9,382	0
22	5/1/2019	94.6	8,547	7,051	4,923	280,000	8,535	0
23	5/2/2019	90.1	8,421	6,049	4,746	280,790	9,316	0
24	5/3/2019	92.1	8,271	6,597	4,931	281,238	9,188	0
25	5/4/2019	94.6	8,264	6,721	4,823	280,200	9,368	0
26	5/5/2019	85.9	8,379	8,871	4,494	279,880	8,670	0
27	5/6/2019	85.9	8,249	6,332	4,836	281,330	8,322	0
28	5/9/2019	83.2	7,879	5,835	4,824	282,197	9,032	0
29	5/10/2019	81.2	8,439	5,646	4,893	279,360	8,498	0
30	5/10/2019	89.8	8,497	5,934	4,781	280,570	8,646	0
31	5/11/2019	87.2	8,337	5,935	4,533	282,350	6,369	0
32	5/11/2019	85.1	8,526	5,796	4,976	279,910	6,213	0
33	5/12/2019	91.7	8,485	6,163	4,390	280,490	6,292	0
34	5/12/2019	86.2	8,236	6,041	4,731	281,147	6,063	0
35	5/13/2019	88.3	8,407	5,839	4,612	280,020	6,345	0
36	5/13/2019	83.3	8,230	6,116	4,258	281,570	6,062	0
37	5/14/2019	92.1	8,443	5,658	4,413	280,980	6,144	0
38	5/14/2019	85.5	8,387	6,017	4,895	281,386	6,104	0
39	5/14/2019	92.9	8,524	6,082	4,265	280,180	6,056	0
40	5/15/2019	79.5	8,117	5,862	4,170	280,065	6,071	0
41	5/15/2019	96.2	8,506	6,098	4,715	279,170	6,200	0
42	5/16/2019	87.8	8,172	6,055	4,427	282,936	6,063	0
43	5/16/2019	91.6	8,369	5,707	4,664	280,670	6,359	0
44	5/17/2019	93.1	8,347	5,555	4,495	280,330	5,999	0
45	5/17/2019	92.2	8,072	5,295	4,848	280,660	5,924	0
46	5/17/2019	94.5	8,327	5,585	4,692	280,200	7,085	0
47	5/18/2019	94.9	8,407	5,443	4,482	284,260	6,010	0
48	5/18/2019	83.4	8,037	5,418	4,449	280,914	5,860	0
49	5/18/2019	93.5	8,448	5,675	4,616	280,060	5,960	0
50	5/18/2019	100.3	8,267	5,500	4,774	279,640	5,915	0
51	5/19/2019	91.9	8,263	5,871	4,790	274,733	6,088	0
52	5/19/2019	94.1	8,359	5,942	5,946	279,148	5,887	0

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53	5/19/2019	93.1	8,396	5,584	4,624	281,640	5,881	0
54	5/21/2019	94.8	8,404	5,858	4,036	278,820	6,030	0
55	5/21/2019	90	8,350	5,700	4,474	278,692	5,791	0
56	5/21/2019	88.2	8,352	5,678	4,602	278,800	5,701	0
57	5/21/2019	98.4	8,442	5,906	4,403	280,260	5,265	0
58	5/22/2019	96.9	8,445	5,906	4,576	279,770	5,259	0
59	5/22/2019	95	8,124	5,844	4,392	280,510	5,367	0
60	5/22/2019	98.9	8,276	5,704	4,302	280,000	5,628	0
61	5/22/2019	97.4	8,239	5,725	4,517	280,573	4,857	0
62	5/22/2019	98.1	8,203	5,515	4,349	280,070	4,309	0
63	5/23/2019	96.5	8,337	5,346	4,534	279,990	4,461	0
64	5/23/2019	99.6	8,310	5,351	477	279,490	4,240	0
65	5/23/2019	97.6	8,267	5,633	4,823	281,064	4,379	0
66	5/23/2019	97.8	8,246	5,693	4,581	279,720	4,303	0
67	5/23/2019	97.1	8,323	5,471	4,308	282,435	4,423	0
68	5/24/2019	95.3	8,365	6,114	4,242	292,264	4,429	0
69	5/24/2019	93	8,224	5,921	4,657	281,532	4,501	0
70	5/24/2019	99.1	8,174	5,695	4,446	279,937	4,426	0
71	5/24/2019	98.7	8,294	6,131	4,684	281,130	4,247	0
72	5/24/2019	100.5	8,199	5,906	4,829	281,030	4,286	0
73	5/25/2019	92.1	8,280	5,966	4,205	280,530	4,238	0
74	5/25/2019	97.2	8,175	6,395	4,287	282,171	4,323	0
75	5/25/2019	96.2	8,343	6,210	4,516	281,295	4,311	0
76	5/25/2019	97.9	8,232	6,389	4,396	281,439	4,381	0
77	5/25/2019	97.2	8,244	6,447	4,213	279,960	4,235	0
78	5/26/2019	97.5	8,169	6,153	4,718	279,790	4,142	0
79	5/26/2019	97.7	8,057	6,278	4,208	281,378	4,295	0
80	5/26/2019	98.9	8,166	6,114	4,766	282,026	4,209	0
81	5/26/2019	99.7	8,004	6,008	4,481	280,000	4,138	0
82	5/27/2019	97.2	8,140	5,887	4,451	280,480	4,235	0
83	5/27/2019	98.7	8,080	6,197	4,543	281,335	4,370	0
84	5/27/2019	100.2	8,001	5,489	4,713	278,840	4,243	0
85	5/28/2019	99.9	7,886	5,577	4,888	279,926	4,261	0
86	5/28/2019	99.7	8,094	5,739	4,517	279,701	4,199	0
87	5/28/2019	95.1	7,976	5,576	4,457	280,276	4,282	0
88	5/29/2019	98.4	7,911	5,372	4,871	278,690	4,092	0
89	5/29/2019	100.4	7,833	5,836	4,574	279,910	4,148	0
90	5/30/2019	93.1	7,967	5,927	4,293	279,660	4,161	0
91	5/30/2019	99.7	7,919	5,686	4,765	279,230	4,523	0
92	5/30/2019	95.6	7,792	5,062	4,551	279,640	4,172	0
93	5/30/2019	95.3	7,788	5,863	4,621	279,472	4,150	0
94	5/31/2019	100	7,671	5,841	4,711	277,200	4,053	0
95	5/31/2019	100.3	7,726	5,862	4,534	280,569	4,174	0
96	6/1/2019	94.6	7,890	6,292	4,449	280,299	4,087	0
97	6/1/2019	100.3	7,804	6,150	4,744	281,639	4,209	0
98	6/2/2019	99.4	7,763	64,186	4,796	282,690	4,158	0
99	6/2/2019	93.4	7,353	5,896	4,723	280,130	4,134	0
100	6/2/2019	93.7	7,841	6,121	4,743	279,638	4,164	0
101	6/3/2019	100.2	7,515	5,993	4,207	281,080	4,110	0
102	6/3/2019	100.2	7,488	6,160	4,708	280,195	4,266	0
103	6/3/2019	100.3	7,350	5,944	4,353	280,291	4,166	0
104	6/4/2019	100.2	7,815	6,102	4,552	280,099	4,097	0
105	6/4/2019	100.5	7,416	6,188	4,997	279,450	4,115	0
106	6/4/2019	91	7,805	6,231	4,392	280,040	4,038	0
107	6/4/2019	99.1	7,377	6,338	4,795	283,946	4,143	0
108	6/5/2019	96.2	7,813	5,868	4,364	280,639	4,096	0
109	6/5/2019	100.6	7,531	6,135	4,297	278,990	4,048	0

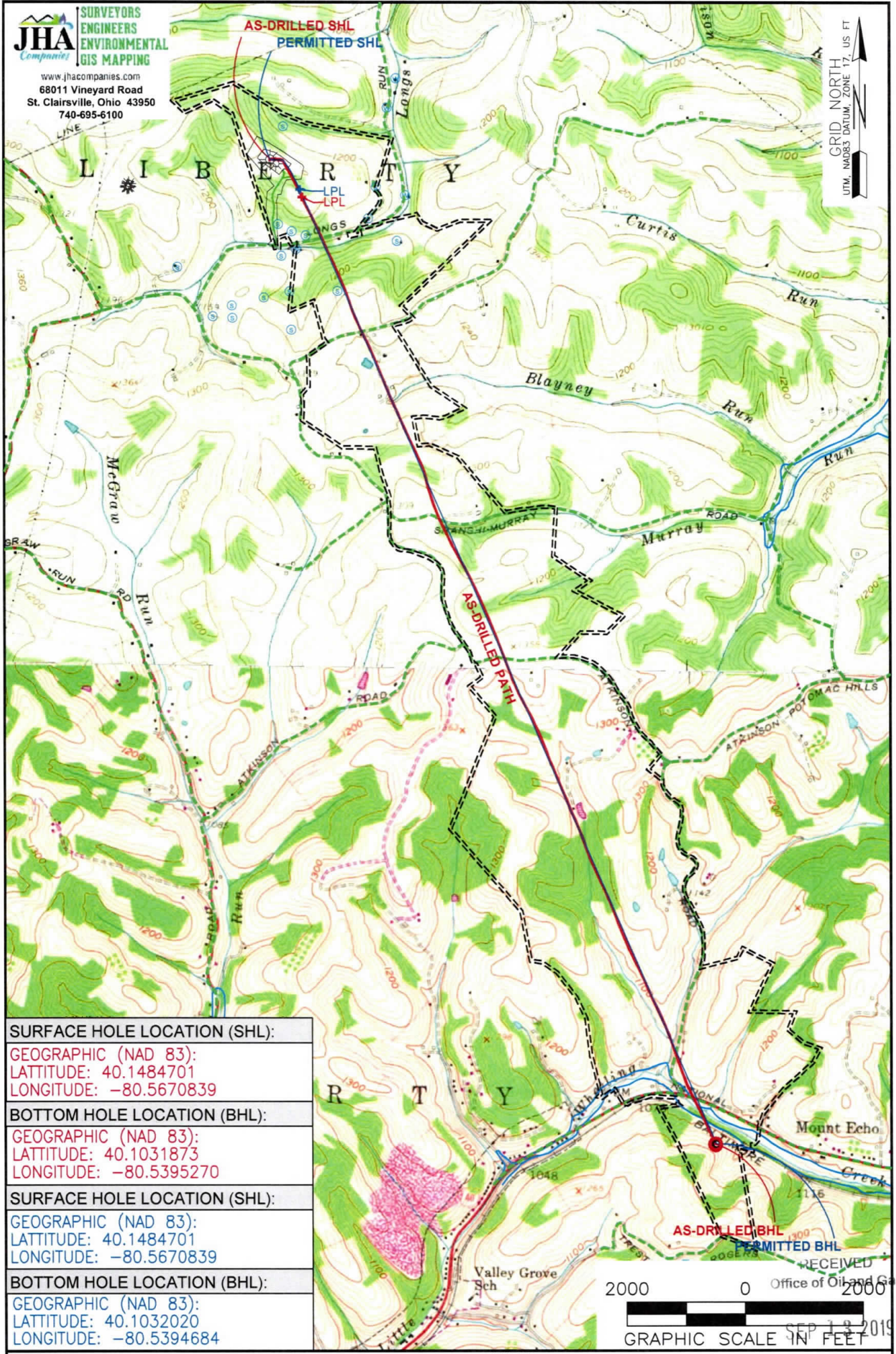
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110	6/5/2019	100.2	7,485	5,789	4,485	280,590	4,100	0
111	6/5/2019	99.5	7,107	6,207	4,428	280,618	4,245	0
112	6/5/2019	100.1	7,276	6,164	4,396	279,934	3,970	0
113	6/6/2019	100.2	7,146	6,030	4,438	280,430	3,979	0
114	6/6/2019	100.6	7,257	6,060	4,245	280,260	4,020	0
115	6/6/2019	100.2	7,110	6,057	4,166	280,040	4,255	0
116	6/7/2019	99.9	7,288	6,135	4,304	280,303	3,972	0
117	6/7/2019	100	7,131	5,715	4,422	280,010	4,035	0
118	6/7/2019	100	6,769	5,924	4,207	280,580	4,276	0
119	6/7/2019	100.5	6,851	5,646	4,564	279,890	3,942	0
120	6/7/2019	97.2	6,845	5,886	4,255	279,926	3,913	0
121	6/8/2019	100.4	6,865	6,160	4,492	280,928	4,157	0
122	6/8/2019	97.6	7,188	5,836	4,465	280,520	4,191	0
123	6/8/2019	99.9	6,660	5,382	4,200	281,050	4,052	0
124	6/8/2019	99.8	6,771	5,412	4,521	280,378	4,004	0
125	6/8/2019	98.3	6,748	5,769	4,529	281,042	3,902	0
126	6/9/2019	99.9	6,647	5,451	4,149	280,002	3,884	0

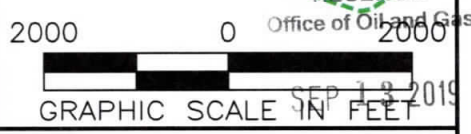
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740-695-6100

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



<b>SURFACE HOLE LOCATION (SHL):</b>
GEOGRAPHIC (NAD 83): LATITUDE: 40.1484701 LONGITUDE: -80.5670839
<b>BOTTOM HOLE LOCATION (BHL):</b>
GEOGRAPHIC (NAD 83): LATITUDE: 40.1031873 LONGITUDE: -80.5395270
<b>SURFACE HOLE LOCATION (SHL):</b>
GEOGRAPHIC (NAD 83): LATITUDE: 40.1484701 LONGITUDE: -80.5670839
<b>BOTTOM HOLE LOCATION (BHL):</b>
GEOGRAPHIC (NAD 83): LATITUDE: 40.1032020 LONGITUDE: -80.5394684



**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:**

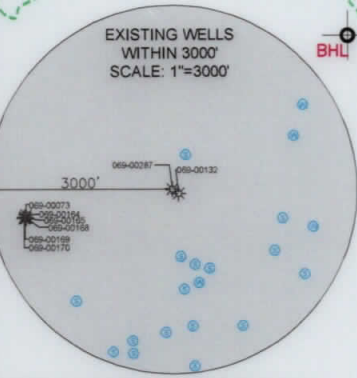
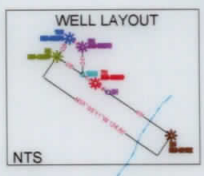
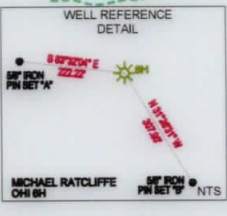
EXISTING BOTTOM HOLE	ACCESS ROAD
EXISTING / PRODUCING WELLHEAD	PUBLIC ROAD
EXISTING LANDING POINT LOCATION	FLOOD PLAIN
PROPOSED SURFACE HOLE / BOTTOM HOLE	LEASE BOUNDARY
PROPOSED LANDING POINT LOCATION	AS-DRILLED PATH
	PROPOSED PATH

<b>WELL OPERATOR:</b> SWN PRODUCTION COMPANY, LLC	<b>WELL (FARM) NAME:</b> MICHAEL RATCLIFFE OHI	<b>WELL #</b> 6H	<b>SERIAL #</b> XXXX
<b>ADDRESS:</b> 1300 FORT PIERPONT DRIVE, SUTIE 201, MORGANTOWN, WV 26508	<b>COUNTY - CODE</b> OHIO - 069	<b>DISTRICT;</b> LIBERTY	
<b>SURFACE OWNER:</b> MICHAEL T. RATCLIFFE	<b>USGS 7 1/2 QUADRANGLE MAP NAME</b> BETHANY & VALLEY GROVE, WV		

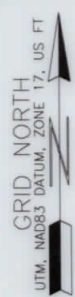


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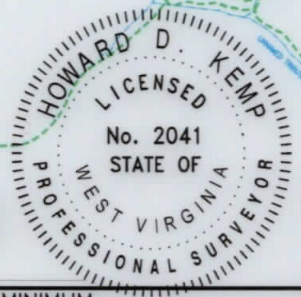
- NOTES ON SURVEY**
1. COORDINATE SYSTEM IS UTM NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
  2. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
  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.



LINE	BEARING	DISTANCE
L1	N64°04'02"W	885.55'
L2	N03°48'05"W	1451.82'



<b>SURFACE HOLE LOCATION (SHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4444325.98 EASTING: 536873.49
<b>LANDING POINT (LPL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4444135.76 EASTING: 537040.00
<b>BOTTOM HOLE LOCATION (BHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4439311.70 EASTING: 539246.69
<b>SURFACE HOLE LOCATION (SHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4444325.98 EASTING: 536873.49
<b>LANDING POINT (LPL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4444175.02 EASTING: 537028.56
<b>BOTTOM HOLE LOCATION (BHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4439313.35 EASTING: 539251.67



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

COMPANY:  
**SWN** Production Company, LLC  
 SWN<sup>RP</sup> Production Company<sup>AV+</sup>

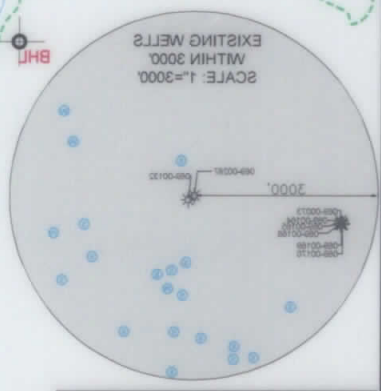
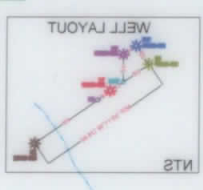
(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)	OPERATOR'S WELL #: MICHAEL RATCLIFFE OHI 6H API WELL #: 47 STATE, 069 COUNTY, 287 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: OHIO UPPER SOUTH DISTRICT: LIBERTY COUNTY: OHIO SURFACE OWNER: MICHAEL T. RATCLIFFE OIL & GAS ROYALTY OWNER: MICHAEL T. RATCLIFFE	ELEVATION: 1,281.3' QUADRANGLE: BETHANY & VALLEY GROVE, WV ACREAGE: ±55.835 ACREAGE: ±55.835
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: 6,541' TVD 24236' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: 1300 FORT PIERPONT DRIVE, SUITE 21 CITY: MORGANTOWN STATE: WV ZIP CODE: 26508	DESIGNATED AGENT: BRITTANY WOODY ADDRESS: 1300 FORT PIERPONT DRIVE 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	<b>REVISIONS:</b> DATE: 09-06-19 DRAWN BY: D. REED SCALE: 1" = 3000' DRAWING NO: 2017-637 WELL LOCATION PLAT

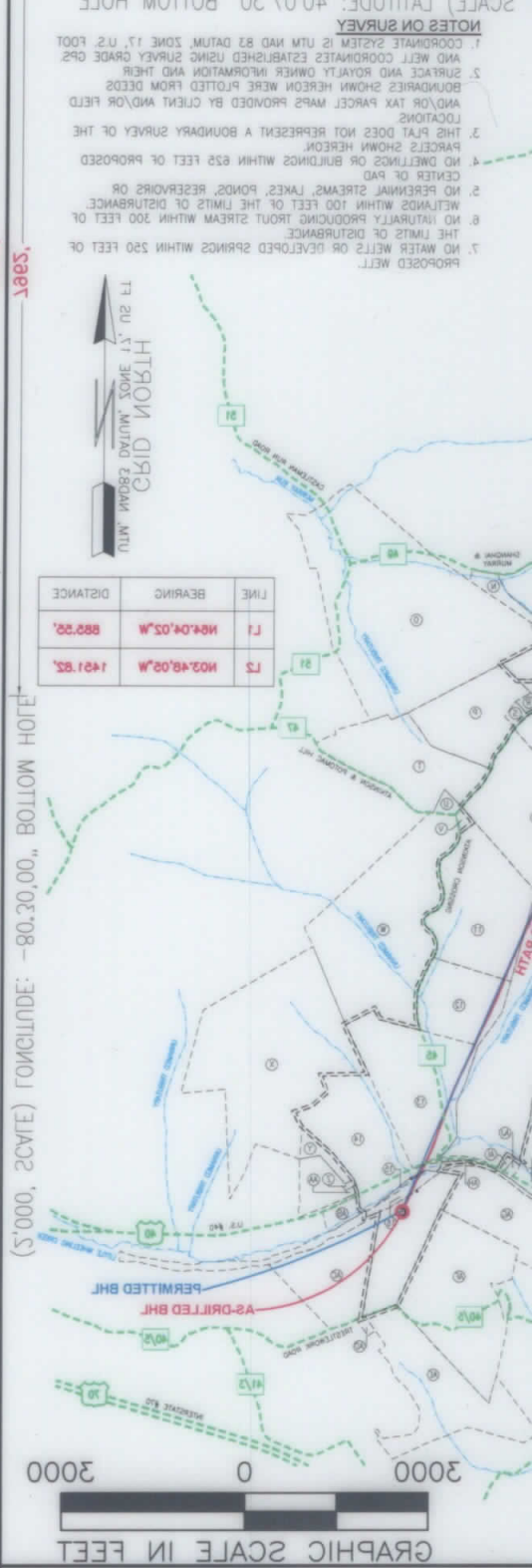
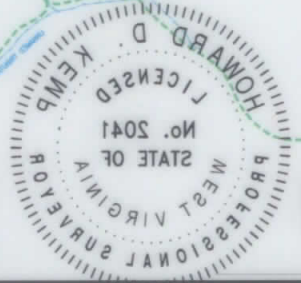
(2,000' SCALE) LONGITUDE: -80°30'00" BOTTOM HOLE 7962'  
 (2,000' SCALE) LONGITUDE: -80°32'30" SURFACE HOLE 6637'

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<b>WELL TYPE:</b> OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input checked="" type="checkbox"/> DEEP <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>
<b>WATERSHED:</b> OHIO UPPER SOUTH
<b>DISTRICT:</b> LIBERTY
<b>SURFACE OWNER:</b> MICHAEL T. RATCLIFFE
<b>OIL &amp; GAS ROYALTY OWNER:</b> MICHAEL T. RATCLIFFE
<b>DRILL:</b> 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"/>
<b>CONVERT:</b> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE <input checked="" type="checkbox"/> (SPECIFY) AS-DRILLED
<b>TARGET FORMATION:</b> MARCELLUS
<b>WELL OPERATOR:</b> SWN PRODUCTION COMPANY, LLC
<b>ADDRESS:</b> 1300 FORT PIERPONT DRIVE SUITE 21
<b>CITY:</b> MORGANTOWN
<b>STATE:</b> WV
<b>ZIP CODE:</b> 26508
<b>DESIGNATED AGENT:</b> BRITANNY WOODY
<b>ESTIMATED DEPTH:</b> 6,541' TVD 54336' TMD
<b>WELL LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4444325.98 EASTING: 536873.49
<b>LANDING POINT (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4444125.02 EASTING: 537028.56
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4439313.35 EASTING: 539251.67
<b>WELL LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4439311.70 EASTING: 539246.68
<b>LANDING POINT (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4444125.76 EASTING: 537040.00
<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4444325.98 EASTING: 536873.49
<b>LANDING POINT (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4444325.98 EASTING: 536873.49
<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4444325.98 EASTING: 536873.49

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



LINE	BEARING	DISTANCE
L1	N84°04'05"W	880.50'
L2	N02°48'08"W	1451.83'

**NOTES ON SURVEY**

1. COORDINATE SYSTEM IS UTM AND 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.
2. THIS PLAN DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
3. NO DWELLINGS OR BUILDINGS WITHIN 625 FEET OF PROPOSED CENTER OF ROAD.
4. NO PERMANENT STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
5. NO NATURALLY PRODUCING TIGHT STREAM WITHIN 300 FEET OF THE LIMITS OF DISTURBANCE.
6. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.

(S'000, SCATE) LONGITUDE: -80.23.30, SURFACE HOLE  
 (S'000, SCATE) LONGITUDE: -80.30.00, BOLLOW HOLE

(S'000, SCALE) LATITUDE: 40.10'00" SURFACE HOLE  
 (S'000, SCALE) LATITUDE: 40.07'30" BOTTOM HOLE

**COMPANY:** SWN Production Company, LLC

**OPERATOR'S WELL #:** OHI 6H

**API WELL #:** 47

**STATE:** OHIO

**COUNTY:** PERMIT

**WELL TYPE:** OIL  WASTE DISPOSAL  PRODUCTION  DEEP  SHALLOW

**WATERSHED:** OHIO UPPER SOUTH

**DISTRICT:** LIBERTY

**SURFACE OWNER:** MICHAEL T. RATCLIFFE

**OIL & GAS ROYALTY OWNER:** MICHAEL T. RATCLIFFE

**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

**WELL OPERATOR:** SWN PRODUCTION COMPANY, LLC

**ADDRESS:** 1300 FORT PIERPONT DRIVE SUITE 21

**CITY:** MORGANTOWN

**STATE:** WV

**ZIP CODE:** 26508

**DESIGNATED AGENT:** BRITANNY WOODY

**ESTIMATED DEPTH:** 6,541' TVD 54336' TMD

**WELL LOCATION (SHL):** UTM (NAD83, ZONE 17, METERS): NORTHING: 4444325.98 EASTING: 536873.49

**LANDING POINT (LPL):** UTM (NAD83, ZONE 17, METERS): NORTHING: 4444125.02 EASTING: 537028.56

**BOTTOM HOLE LOCATION (BHL):** UTM (NAD83, ZONE 17, METERS): NORTHING: 4439313.35 EASTING: 539251.67

**WELL LOCATION (BHL):** UTM (NAD83, ZONE 17, METERS): NORTHING: 4439311.70 EASTING: 539246.68

**LANDING POINT (LPL):** UTM (NAD83, ZONE 17, METERS): NORTHING: 4444125.76 EASTING: 537040.00

**SURFACE HOLE LOCATION (SHL):** UTM (NAD83, ZONE 17, METERS): NORTHING: 4444325.98 EASTING: 536873.49

**LANDING POINT (LPL):** UTM (NAD83, ZONE 17, METERS): NORTHING: 4444325.98 EASTING: 536873.49

**SURFACE HOLE LOCATION (SHL):** UTM (NAD83, ZONE 17, METERS): NORTHING: 4444325.98 EASTING: 536873.49

PROPERTY NUMBER 2501163406  
 PWD ID 2001165623  
 DRAWN BY: D. REED  
 SCALE: 1" = 3000'  
 DRAWING NO: 2017-837  
 WELL LOCATION PLAN

**LEGEND:**

- PROPOSED SURFACE HOLE \ BOTTOM HOLE
- PROPOSED LANDING POINT LOCATION
- EXISTING LANDING POINT LOCATION
- EXISTING \ PRODUCING WELLS
- EXISTING BOTTOM HOLE
- EXISTING WATER WELL
- EXISTING SPRING
- SURVEYED BOUNDARY
- LEASE BOUNDARY
- AS-DRILLED PATH
- PROPOSED PATH

**REVISIONS:**

NO.	DATE	DESCRIPTION
1	09-08-19	

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	MICHAEL T. RATCLIFFE (S/R)	03-L5-12.4
TRACT	SURFACE OWNER	TAX PARCEL
2	TRAVIS C. RATCLIFFE	03-L5-12
3	DONALD D. PRINCE	03-L5-24
4	SUSAN NORTHWOOD SMITH & RICHARD ALAN SMITH	03-L5-23.1
5	JASON & RACHEL MILLER	03-L5-23.3
6	WALTER W. KNOLLINGER, JR. & MONA DEE KNOLLINGER	03-L5-23.4
7	BERNARD T. & MARJORIE A. RAAB	03-L8-7
8	ROBERT C. JONES	03-L8-11
9	DAVID E. DAVIS, JR.	03-L8-35
10	WINTERS FAMILY FARM, LLC	03-L11-28
11	HOWARD WINTERS	03-L8-36
12	HOWARD WINTERS	03-L11-28.1
13	MARTHA E. CREIGHTON	03-L11-29
14	MILDRED J. MAZGAJ	03-L11-62
15	SHARON & WARREN GRIFFITH	03-L11-60.1
16	TUNNEL RIDGE, LLC	03-L12-32

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	JOSEPH P. & SHIRLEY J. TAGGART	03-L5-3
B	DONALD F. & J.L. DOLENCE	03-L5-11
C	TRAVIS CHRISTOPHER RATCLIFFE	03-L5-12.1
D	JOSEPH G. PRINCE	03-L5-25
E	JOSEPH G. PRINCE & DONALD D. PRINCE	03-L5-11.2
F	GEORGE F. SMITH	03-L5-27
G	DALE R. & JACKIE A. RITCHEA	03-L5-23.2
H	DONALD L. & DEBORAH JO WADDELL	03-L5-23.6
I	DONALD L. & DEBORAH JO WADDELL	03-L5-23
J	DONALD L. & DEBORAH JO WADDELL	03-L8-39
K	PETER, JR. & D.J. COTTAGE, THE COTTAGE FAMILY REV TRUST)	03-L8-8
L	NEAL P. BROWN	03-L8-9.6
M	SCOTT A. & JILL L. DILLE	03-L8-9.3
N	GEORGE E., III & M.A. PORTER	03-L8-9.5
O	ROBERT F. & N.C. REASS	03-L9-1
P	JODY LEE SHILLING	03-L8-10
Q	RANDY J. CREIGHTON	03-L8-11.2
R	PAUL A. MAIN	03-L8-10.1
S	RICHARD C. & K.J. WHEAT	03-L8-10.2
T	LARRY G. BALL	03-L8-42
U	SUSAN J.H. HARDMAN	03-L8-37
V	BERNARD T. & PATRICIA ADAMS	03-L8-37.1
W	TIMMY B. & AMY LYNN MINCH	03-L9-12
X	WILLIAM I. & DOUGLAS W. RODGERS	03-L12-1
Y	CATHY J. & JERRY W. CALDWELL	03-L12-6
Z	JERRY & CATHY CALDWELL	03-L11-69
AA	LARRY MICHAEL PATRICK	03-L11-68
AB	MARION S. & MILDRED J. MAZGAJ	03-L11-67
AC	THERESA & MARK WATKINS	03-L11-60
AD	JEFFREY B. POWERS	03-L11-46.20
AE	LLOYD A. KLAGES, JR.	03-L11-46.18
AF	C.J. & GRACE A. ROTTER	03-L11-54
AG	JOHN A. NOLAN, JR.	03-L11-61
AH	JOHN A. NOLAN, JR.	03-L11-63
AI	DONNA ELAINE VANCE	03-L11-32.1
AJ	DONNA ELAINE VANCE	03-L11-32.2
AK	STRICKLAND HOLLOWAY, III	03-L11-32
AL	EDWARD G. GROUX, JR. & JEFFREY L. GROUX	03-L11-27
AM	EDWARD G. & LYDIA GROUX (LIFE ESTATE), EDWARD G. GROUX, JR.	03-L11-26
AN	EDWARD G. & LYDIA GROUX (LIFE ESTATE), EDWARD G. GROUX, JR.	03-L11-26.6
AO	ROBERT C. JONES	03-L8-11.1
AP	ROBERT A. SHILLING, SR.	03-L8-33.9
AQ	JOSEPH T. KLUG	03-L8-34.1
AR	ROBERT A. SHILLING, SR.	03-L8-33
AS	THOMAS P. & TERESA HUDRLIK	03-L8-12.12
AT	BILL RAILING	03-L8-12.8
AU	VICKI L. & DANIEL P. TUSTIN	03-L8-12.6
AV	DANIEL P. TUSTIN, JR.	03-L8-12.9
AW	DANIEL PAUL TUSTIN, JR.	03-L8-12.11
AX	RICHARD R. & L.L. BLOOMFIELD	03-L8-12.10
AY	BARNETT E. & LAURIE L. BECK	03-L8-12.5
AZ	KATHY J. HUNTER	03-L8-6
BA	A.R. & Z.I. NIXON	03-L8-5
BB	JENNIFER G. BURROWS	03-L8-4.1
BC	DAVID PAUL & DAWN M. DOYLE	03-L8-4
BD	DAVID A. WADDELL	03-L5-23.5
BE	EDWARD & ELIZABETH LINK	03-L5-23.7
BF	EDWARD R. & ELIZABETH A. LINK	03-L5-22
BG	MICHAEL T. RATCLIFFE	03-L5-12.3
BH	CASEY P. & DEVAN M. YOUNG	03-L5-13
BI	MARK & ANNELESE KAUFMAN	03-L5-1.1

REVISIONS:

COMPANY:

**SWN**  
Production Company, LLC

**SWN** <sup>R-V+0</sup>  
Production Company™

OPERATOR'S

MICHAEL RATCLIFFE

DATE: 09-06-19

WELL #:

OHI 6H

DRAWN BY: D. REED

DISTRICT:  
LIBERTY

COUNTY:  
OHIO

STATE:  
WV

SCALE: N/A  
DRAWING NO: 2017-637  
WELL LOCATION PLAT

TRACT	SURFACE OWNER (S) \ ROYALTY OWNER (R)	TAX PARCEL
1	MICHAEL T. RATCLIFFE (S/R)	03-12-124
2	TRAVIS C. RATCLIFFE	03-12-12
3	DONALD D. PRINCE	03-12-24
4	SUSAN NORTHWOOD SMITH & RICHARD ALAN SMITH	03-12-271
5	JASON & RACHEL MILLER	03-12-273
6	WALTER W. KNOLLINGER, JR. & MONA DEE KNOLLINGER	03-12-274
7	BERNARD T. & MARJORIE A. RAAB	03-12-7
8	ROBERT C. JONES	03-12-11
9	DAVID E. DAVIS, JR.	03-12-38
10	WINTERS FAMILY FARM, LLC	03-11-28
11	HOWARD WINTERS	03-12-38
12	HOWARD WINTERS	03-11-281
13	MARTHA E. CREIGHTON	03-11-29
14	MILDRED J. MASCAJ	03-11-82
15	SHARON & WARREN GRIFFITH	03-11-801
16	TUNNEL RIDGE, LLC	03-12-32

TRACT	SURFACE OWNER	TAX PARCEL
A	JOSEPH P. & SHIRLEY J. TAGGART	03-12-3
B	DONALD F. & J.L. DOLENCE	03-12-11
C	TRAVIS CHRISTOPHER RATCLIFFE	03-12-121
D	JOSEPH G. PRINCE	03-12-28
E	JOSEPH G. PRINCE & DONALD D. PRINCE	03-12-112
F	GEORGE F. SMITH	03-12-27
G	DALE R. & JACKIE A. RITCHEA	03-12-273
H	DONALD J. & DEBORAH JO WADDELL	03-12-278
I	DONALD J. & DEBORAH JO WADDELL	03-12-27
J	DONALD J. & DEBORAH JO WADDELL	03-12-38
K	PETER, JR. & D.J. COTTAGE, THE COTTAGE FAMILY REV TRUST	03-12-8
L	NEAL P. BROWN	03-12-98
M	SCOTT A. & JILL L. DILLE	03-12-93
N	GEORGE E., III & M.A. PORTER	03-12-95
O	ROBERT F. & N.C. REAS	03-12-1
P	JODY LEE SHILLING	03-12-10
Q	RANDY J. CREIGHTON	03-12-112
R	PAUL A. MAIN	03-12-101
S	RICHARD C. & K.J. WHEAT	03-12-102
T	LARRY G. BALL	03-12-42
U	SUSAN J.H. HARDMAN	03-12-27
V	BERNARD T. & PATRICIA ADAMS	03-12-271
W	TIMMY B. & AMY LYNN MINCH	03-12-12
X	WILLIAM I. & DOUGLAS W. RODGERS	03-12-1
Y	CATHY J. & JERRY W. CALDWELL	03-12-8
Z	JERRY & CATHY CALDWELL	03-11-89
AA	LARRY MICHAEL PATRICK	03-11-88
AB	MARION S. & MILDRED J. MASCAJ	03-11-87
AC	THERESA & MARK WALKING	03-11-80
AD	JEFFREY B. POWERS	03-11-4820
AE	LLOYD A. KLACZ, JR.	03-11-4818
AF	C.L. & GRACE A. ROTTER	03-11-24
AG	JOHN A. NOLAN, JR.	03-11-81
AH	JOHN A. NOLAN, JR.	03-11-82
AI	DONNA ELAINE VANCE	03-11-251
AJ	DONNA ELAINE VANCE	03-11-252
AK	STRIKLAND HOLLOWAY, III	03-11-25
AL	EDWARD G. GROUX, JR. & JEFFREY L. GROUX	03-11-27
AM	EDWARD G. & LYDIA GROUX (LIFE ESTATE), EDWARD G. GROUX, JR.	03-11-28
AN	EDWARD G. & LYDIA GROUX (LIFE ESTATE), EDWARD G. GROUX, JR.	03-11-288
AO	ROBERT C. JONES	03-12-11
AP	ROBERT A. SHILLING, SR.	03-12-239
AQ	JOSEPH T. KLUG	03-12-241
AR	ROBERT A. SHILLING, SR.	03-12-23
AS	THOMAS P. & TERESA HUDRLIK	03-12-1212
AT	BILL RAILING	03-12-128
AU	VICKI L. & DANIEL P. TUSTIN	03-12-128
AV	DANIEL P. TUSTIN, JR.	03-12-129
AW	DANIEL PAUL TUSTIN, JR.	03-12-1211
AX	RICHARD R. & L.L. BLOOMFIELD	03-12-1210
AY	BARNETT E. & LAURIE L. BECK	03-12-122
AZ	KATHY J. HUNTER	03-12-8
BA	A.R. & Z.I. NIXON	03-12-8
BB	JENNIFER G. BURROWS	03-12-41
BC	DAVID PAUL & DAWN M. DOYLE	03-12-4
BD	DAVID A. WADDELL	03-12-235
BE	EDWARD & ELIZABETH LINK	03-12-237
BF	EDWARD R. & ELIZABETH A. LINK	03-12-23
BG	MICHAEL T. RATCLIFFE	03-12-122
BH	CASEY P. & DEVA M. YOUNG	03-12-12
BI	MARK & ANNELESE KAUFMAN	03-12-11

DATE: 09-08-19		DRAWN BY: D. REED		SCALE: N/A		DRAWING NO: 2017-837		WELL LOCATION PLAT	
OPERATOR'S		MICHAEL RATCLIFFE		WELL #:		OHI 6H		LIBERTY	
DISTRICT:		OHIO		COUNTY:		STATE:		WV	
COMPANY:		SWM		Production Company, LLC		SWM		Production Company, LLC	
REVISIONS:									