

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

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JAN 29 2021

WV Department of  
Environmental Protection

API 47-069-00313 County OHIO District RICHLAND  
Quad TILTONSVILLE, OH-WV Pad Name FRANZ THOMAN-OHI-PAD1 Field/Pool Name PANHANDLE FIELD WET  
Farm name FRANZ THOMAN Well Number FRANZ THOMAN OHI 205H  
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 4,442,985.85 Easting 528,981.49  
Landing Point of Curve Northing 4,443,241.23 Easting 529,320.62  
Bottom Hole Northing 4,448,455.10 Easting 527,774.90

Elevation (ft) 1137.3' 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 1/22/2020 Date drilling commenced 2/11/2020 Date drilling ceased 2/28/2020  
Date completion activities began 9/14/2020 Date completion activities ceased 11/16/2020  
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 326' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 473' Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 344' Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:

B. S.  
8-10-21  
**09/10/2021**

WR-35  
Rev. 8/23/13

API 47-069 - 00313 Farm name FRANZ THOMAN Well number FRANZ THOMAN OHI 205H

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	413	NEW	J-55/54.50#	324' / 327'	Y
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	1,749	NEW	J-55/36#		Y; 37 BBLs
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	24,495	NEW	P-110/20#		Y
Tubing		2.875	6,636	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	837	15.60	1.19	996.03	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	674	15.60	1.19	802.06	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	4,825	15.60	1.19	5,741.75	SURFACE	24
Tubing							

Drillers TD (ft) 24,495'      Loggers TD (ft) 24,495'  
 Deepest formation penetrated MARCELLUS      Plug back to (ft) N/A  
 Plug back procedure N/A

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Kick off depth (ft) 5,136'

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

Well cored     Yes     No      Conventional      Sidewall      Were cuttings collected     Yes     No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_

SURFACE: 7 CENTRALIZERS - EVERY THIRD JOINT OF CASING  
 INTERMEDIATE: 24 CENTRALIZERS - EVERY THIRD JOINT OF CASING  
 PRODUCTION: 181 CENTRALIZERS - EVERY THIRD JOINT FROM SURFACE TO TOP OF CURVE, THEN EVERY JOINT UNTIL TD

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

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

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

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API 47-069 - 00313 Farm name FRANZ THOMAN Well number FRANZ THOMAN OHI 205H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	SEE	ATTACHMENT 1	1		

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Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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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	2					

Please insert additional pages as applicable.

09/10/2021

API 47- 069 - 00313

Farm name FRANZ THOMAN

Well number FRANZ THOMAN OHI 205H

PRODUCING FORMATION(S)

DEPTHS

MARCELLUS 5,842' TVD 6,375' MD

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Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow

OIL TEST  Flow  Pump

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SHUT-IN PRESSURE Surface 2487 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas 3,819 mcfpd Oil 528 bpd NGL \_\_\_\_\_ bpd Water 1,752 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	
	0		0		
	SEE	ATTACHMENT	3		

Please insert additional pages as applicable.

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

Logging Company SCHLUMBERGER  
Address 4800 W GREENS RD City HOUSTON State TX Zip 77066

Cementing Company BJ SERVICES  
Address 11211 FM 2920 City TOMBALL State TX Zip 77375

Stimulating Company SWN WELL SERVICES  
Address PO BOX 12359 City SPRING State TX Zip 77391-2359

Please insert additional pages as applicable.

Completed by Elizabeth Gee Telephone 832-796-2873  
Signature *Elizabeth Gee* Title Staff Regulatory Analyst Date 1/27/2021

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

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FRANZ THOMAN OHI 205H

ATTACHMENT 2

STIM REPORT

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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	9/14/2020	74.2	8,430	3,556	4,453	192,380	72,012	0
2	9/15/2020	75.2	7,435	5,882	4,725	369,160	9,579	0
3	9/16/2020	83.6	7,672	4,923	4,108	354,980	8,653	0
4	9/17/2020	86.2	7,600	5,025	4,031	354,680	8,662	0
5	9/17/2020	90.8	8,030	4,590	4,281	351,100	8,768	0
6	9/17/2020	90.6	8,245	5,320	4,198	354,510	9,017	0
7	9/18/2020	88.9	7,950	4,725	4,118	349,780	8,572	0
8	9/18/2020	87.5	8,392	4,490	4,123	360,120	8,514	0
9	9/19/2020	81.7	7,890	5,153	4,151	352,420	9,586	0
10	9/20/2020	94.1	8,429	5,769	4,183	350,900	8,829	0
11	9/20/2020	91.9	8,040	4,788	4,120	344,020	8,396	0
12	9/20/2020	91.8	8,269	4,785	4,282	358,130	8,425	0
13	9/21/2020	88.4	7,839	5,915	4,334	361,800	8,632	0
14	9/22/2020	85.7	8,108	5,352	4,306	360,340	8,461	0
15	9/23/2020	89.7	7,950	5,542	4,296	357,580	9,033	0
16	9/23/2020	82.6	7,453	5,658	4,102	360,440	8,322	0
17	9/23/2020	87.3	8,107	5,690	4,457	357,720	8,478	0
18	9/24/2020	84.1	7,913	5,866	4,163	362,520	8,601	0
19	9/24/2020	88.5	8,239	5,399	4,686	363,580	8,620	0
20	9/24/2020	88.3	8,243	5,412	4,205	356,800	8,580	0
21	9/25/2020	84.9	7,979	5,641	4,244	357,440	8,335	0
22	9/25/2020	87.3	8,019	5,640	4,127	334,000	7,954	0
23	9/25/2020	93.6	8,230	5,376	4,421	358,000	8,457	0
24	9/26/2020	89.8	7,959	5,557	4,375	362,300	8,275	0
25	9/26/2020	89.6	8,100	5,687	4,789	357,080	8,021	0
26	9/27/2020	81.2	7,570	5,730	4,147	359,070	11,066	0
27	9/28/2020	92.3	8,226	5,466	4,450	360,540	8,623	0
28	9/28/2020	92.4	8,045	5,714	4,243	355,280	8,104	0
29	9/28/2020	92	8,157	4,515	4,412	333,060	8,270	0
30	9/29/2020	91.1	7,852	4,685	4,453	355,240	8,321	0
31	9/29/2020	88.1	7,883	5,622	4,146	356,440	7,916	0
32	9/29/2020	90	7,560	5,619	4,514	359,280	8,343	0
33	9/29/2020	86.3	8,228	5,620	4,478	359,400	8,295	0
34	9/30/2020	97.9	7,838	5,986	4,952	353,740	8,357	0
35	9/30/2020	99.6	8,018	5,827	4,705	355,360	8,180	0
36	9/30/2020	91.6	8,277	5,760	4,468	355,640	7,848	0
37	10/1/2020	95.2	8,009	5,311	4,563	360,420	7,979	0
38	10/1/2020	98.5	8,028	5,601	4,517	357,420	7,897	0
39	10/1/2020	99.3	8,046	5,619	4,639	355,320	7,979	0
40	10/2/2020	98.5	8,074	5,261	4,536	354,000	7,916	0
41	10/2/2020	96.6	8,041	5,783	4,567	357,860	7,769	0
42	10/2/2020	91.1	7,865	5,510	4,445	353,740	7,840	0
43	10/3/2020	96.8	7,985	5,539	4,340	355,060	7,624	0
44	10/3/2020	98.1	7,819	5,556	4,648	358,100	7,782	0
45	10/3/2020	97.8	7,673	5,661	4,594	363,080	7,773	0
46	10/3/2020	88.8	8,062	5,657	4,399	352,420	8,038	0
47	10/4/2020	92.2	7,884	6,004	4,052	357,780	10,847	0
48	10/4/2020	98.7	7,692	5,763	4,852	358,660	7,771	0
49	10/5/2020	96.5	7,903	5,633	4,496	353,960	7,802	0
50	10/5/2020	93.7	7,766	5,625	4,885	355,100	11,338	0
51	10/6/2020	94.8	7,356	5,710	4,510	354,780	7,903	0
52	10/7/2020	95.5	7,879	5,525	4,362	359,660	7,643	0
53	10/7/2020	100	7,392	5,263	4,717	355,740	7,873	0

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**FRANZ THOMAN OHI 205H  
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	10/7/2020	99	7,398	5,390	4,326	354,700	7,758	0
55	10/7/2020	99.6	7,451	5,551	4,422	360,600	7,737	0
56	10/8/2020	94	7,845	5,389	4,655	354,520	7,761	0
57	10/9/2020	93.7	7,331	4,752	4,368	355,200	7,755	0
58	10/9/2020	96	7,393	5,325	4,992	358,020	8,834	0
59	10/9/2020	96.7	7,343	5,265	4,416	355,780	7,625	0
60	10/10/2020	91.7	7,167	5,354	4,855	353,380	7,436	0
61	10/10/2020	88.8	7,348	5,686	4,862	359,890	7,407	0
62	10/11/2020	96.3	7,690	5,848	4,452	358,920	7,233	0
63	10/11/2020	89.5	7,808	5,444	4,713	350,560	7,349	0
64	10/11/2020	97.5	7,276	5,326	4,367	360,840	7,697	0
65	10/12/2020	94.8	7,327	2,775	4,765	358,440	7,745	0
66	10/12/2020	97.5	7,208	5,325	4,852	358,560	7,631	0
67	10/12/2020	97.5	7,274	5,246	4,647	355,320	7,933	0
68	10/13/2020	96.6	7,297	5,261	4,712	353,800	7,614	0
69	10/13/2020	97.9	7,120	5,420	4,471	361,480	8,008	0
70	10/14/2020	94.7	7,538	5,410	4,875	356,680	7,685	0
71	10/14/2020	93.5	7,262	5,866	4,352	355,960	7,810	0
72	10/15/2020	94	7,090	5,524	4,274	353,000	7,759	0
73	10/15/2020	96.5	7,388	5,307	4,577	345,680	7,812	0
74	10/15/2020	91.6	7,165	5,420	4,203	357,060	7,929	0
75	10/16/2020	94.7	7,025	5,288	4,641	350,060	7,754	0
76	10/16/2020	97.8	6,871	5,032	4,259	361,870	8,061	0
77	10/17/2020	94.1	7,565	5,310	4,285	361,930	7,946	0
78	10/17/2020	96.8	6,890	5,354	4,425	357,740	7,914	0
79	10/17/2020	94.9	7,098	5,120	4,208	362,310	7,818	0
80	10/18/2020	97.5	6,824	4,522	4,263	352,960	8,031	0
81	10/18/2020	97.7	6,759	5,345	4,711	352,580	7,945	0
82	10/18/2020	90.3	6,364	5,125	4,420	361,640	9,314	0
83	10/19/2020	98.3	6,622	5,289	4,402	358,530	8,007	0
84	10/19/2020	98.3	6,591	5,250	4,126	362,420	7,914	0
85	10/20/2020	91.8	6,287	5,891	4,500	349,940	7,749	0
86	10/20/2020	82.1	7,722	5,982	4,215	203,040	6,717	0

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ATTACHMENT 1

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PERF REPORT

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG
1	8/1/2020	24,450	24,358	36
2	9/15/2020	24,324	24,146	36
3	9/16/2020	24,113	23,936	36
4	9/16/2020	23,903	23,725	36
5	9/17/2020	23,692	23,514	36
6	9/17/2020	23,481	23,304	36
7	9/18/2020	23,270	23,093	36
8	9/18/2020	23,060	22,882	36
9	9/19/2020	22,849	22,671	36
10	9/19/2020	22,638	22,461	36
11	9/20/2020	22,428	22,250	36
12	9/20/2020	22,217	22,039	36
13	9/21/2020	22,006	21,828	36
14	9/21/2020	21,795	21,618	36
15	9/23/2020	21,585	21,407	36
16	9/23/2020	21,374	21,198	36
17	9/23/2020	21,163	20,986	36
18	9/24/2020	20,952	20,775	36
19	9/24/2020	20,742	20,569	36
20	9/24/2020	20,531	20,353	36
21	9/25/2020	20,320	20,143	36
22	9/25/2020	20,110	19,932	36
23	9/25/2020	19,899	19,721	36
24	9/26/2020	19,688	19,511	36
25	9/26/2020	19,477	19,300	36
26	9/26/2020	19,267	19,089	36
27	9/27/2020	19,056	18,878	36
28	9/28/2020	18,845	18,668	36
29	9/28/2020	18,630	18,457	36
30	9/28/2020	18,424	18,246	36
31	9/29/2020	18,213	18,036	36
32	9/29/2020	18,002	17,825	36
33	9/29/2020	17,792	17,614	36
34	9/30/2020	17,581	17,403	36
35	9/30/2020	17,367	17,193	36
36	9/30/2020	17,160	16,982	36
37	10/1/2020	16,949	16,771	36
38	10/1/2020	16,735	16,560	36
39	10/1/2020	16,527	16,350	36
40	10/1/2020	16,317	16,139	36
41	10/2/2020	16,106	15,928	36
42	10/2/2020	15,895	15,718	36
43	10/2/2020	15,684	15,507	36

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 PERF REPORT

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STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# OF TESTS PER STG
44	10/3/2020	15,474	15,296	36
45	10/3/2020	15,263	15,085	36
46	10/3/2020	15,052	14,875	36
47	10/4/2020	14,842	14,664	36
48	10/4/2020	14,631	14,453	36
49	10/4/2020	14,420	14,243	36
50	10/5/2020	14,209	14,032	72
51	10/5/2020	13,999	13,821	36
52	10/6/2020	13,788	13,610	36
53	10/7/2020	13,577	13,400	36
54	10/7/2020	13,367	13,189	36
55	10/7/2020	13,156	12,978	36
56	10/8/2020	12,945	12,768	36
57	10/8/2020	12,734	12,559	36
58	10/9/2020	12,524	12,346	36
59	10/9/2020	12,313	12,135	36
60	10/9/2020	12,102	11,925	36
61	10/10/2020	11,892	11,714	36
62	10/10/2020	11,681	11,503	36
63	10/11/2020	11,470	11,292	36
64	10/11/2020	11,259	11,082	36
65	10/11/2020	11,049	10,871	36
66	10/12/2020	10,838	10,660	36
67	10/12/2020	10,627	10,450	36
68	10/12/2020	10,417	10,237	36
69	10/13/2020	10,206	10,028	36
70	10/14/2020	9,995	9,817	36
71	10/14/2020	9,784	9,607	36
72	10/15/2020	9,577	9,396	36
73	10/15/2020	9,363	9,185	36
74	10/15/2020	9,152	8,975	36
75	10/15/2020	8,941	8,764	36
76	10/16/2020	8,731	8,553	36
77	10/16/2020	8,520	8,342	36
78	10/17/2020	8,309	8,132	36
79	10/17/2020	8,099	7,921	36
80	10/17/2020	7,888	7,710	36
81	10/18/2020	7,677	7,500	36
82	10/18/2020	7,466	7,289	36
83	10/19/2020	7,256	7,078	36
84	10/19/2020	7,045	6,867	36
85	10/19/2020	6,834	6,657	36
86	10/20/2020	6,624	6,446	36





Well Name: Franz Thoman OHI 205H 47069003130000

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	326.00	326.00	
Top of Salt Water	473.00	473.00	NA	NA	
Pittsburgh Coal	344.00	344.00	349.00	349.00	
Pottsville (ss)	463.00	463.00	824.00	824.00	
Raven Cliff (ss)	824.00	824.00	1111.00	1111.00	
Maxton (ss)	1111.00	1111.00	1430.00	1419.00	
Big Injun (ss)	1430.00	1419.00	5525.00	5327.00	
Rhinestreet (shale)	5525.00	5327.00	5820.00	5564.00	
Cashaqua (shale)	5820.00	5564.00	5892.00	5628.00	
Middlesex (shale)	5892.00	5628.00	6004.00	5695.00	
Burket (shale)	6004.00	5695.00	6037.00	5712.00	
Tully (ls)	6037.00	5712.00	3123.00	5761.00	
Mahantango (shale)	3123.00	5761.00	6375.00	5842.00	
Marcellus (shale)	6375.00	5842.00	NA	NA	GAS

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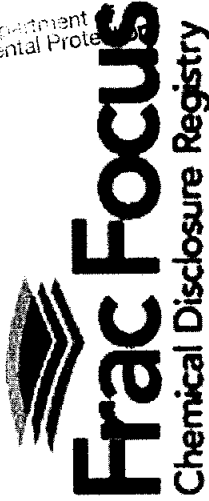
# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date	9/14/2020
Job End Date	10/20/2020
State	West Virginia
County	Ohio
API Number	47-069-00313-00-00
Operator Name	Southwestern Energy
Well Name and Number	FRANZ THOMAN OHI 205
Latitude	40.13670565
Longitude	-80.65979900
Datum	NAD83
Federal Well	NO
Indian Well	NO
True Vertical Depth	5,785
Total Base Water Volume (gals)	32,282,014
Total Base Non Water Volume	0

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## 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
Base Water	Operator	Base Fluid	Water	7732-18-5	100.00000	89.67109	Density = 8.345
Ingredients	Listed Above	Listed Above	Water	7732-18-5	85.00000	0.17390	

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Ecopol-FEAC	SWN Well Services	Iron Control		Listed Below				
Econo-CI200	SWN Well Services	Corrosion Inhibitor		Listed Below				
Plexaid 655WG	SWN Well Services	Scale Inhibitor		Listed Below				
HCL	SWN Well Services	Solvent		Listed Below				
Sand	SWN Well Services	Proppant		Listed Below				
SWN FRW-11LC	SWN Well Services	Friction Reducer		Listed Below				
Tollicide PS 50A	SWN Well Services	Biocide		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	10.09285		
			Petroleum Distillates, Hydrotreated	64742-47-8	25.00000	0.02105		
			Hydrochloric Acid	7647-01-0	15.00000	0.01774		
			Tetrakis	55566-30-8	55.00000	0.01446		
			Glycerin	56-81-5	50.00000	0.00323		

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			Ammonium Chloride	12125-02-9	2.00000	0.00168
			Oleic Acid Diethanolamide	93-83-4	1.50000	0.00126
			Alcohols, C12-1, ethoxylated	68551-12-2	1.50000	0.00126
			Diethylenetriamine penta ethoxylated	15827-60-8	10.00000	0.00065
			Acrylic acid terpolymer	397256-50-7	1.00000	0.00026
			Acetic Acid	64-19-7	37.50000	0.00024
			Methanol	67-56-1	80.00000	0.00015
			Citric Acid	77-92-9	22.50000	0.00014
			Oxyalkylated fatty acid	68951-67-7	9.67400	0.00002
			Fatty acids	61790-12-3	5.02700	0.00001
			Modified thiourea polymer	68527-49-1	4.74600	0.00001
			Potassium acetate	127-08-2	0.02200	0.00000
			Formaldehyde	50-00-0	0.00400	0.00000

\* 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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LATITUDE: 40°10'00" SURFACE HOLE (2000' SCALE)

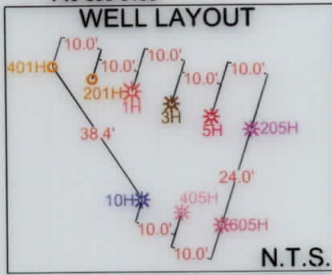
9725'

LATITUDE: 40°12'30" BOTTOM HOLE (2000' SCALE)

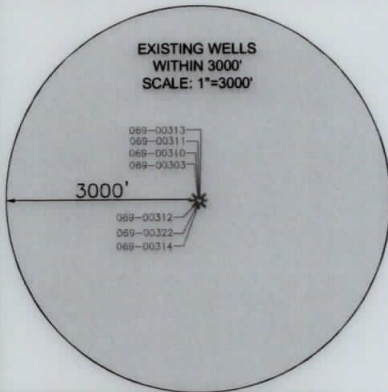
2022'



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



LINE	BEARING	DISTANCE
L1	S57°52'46"E	1138.76'
L2	S80°57'49"E	1406.58'



<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4442985.85 EASTING: 528981.49
<b>LANDING POINT LOCATION (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4443241.23 EASTING: 529320.62
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4448455.10 EASTING: 527774.90
<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4442985.85 EASTING: 528981.49
<b>LANDING POINT LOCATION (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4443190.01 EASTING: 529333.81
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4448452.46 EASTING: 527774.19

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



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
WVDEP  
OFFICE OF OIL & GAS  
601 57TH STREET  
CHARLESTON, WV 25034

MINIMUM DEGREE OF ACCURACY: 1/200  
PROVEN SURVEY SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)

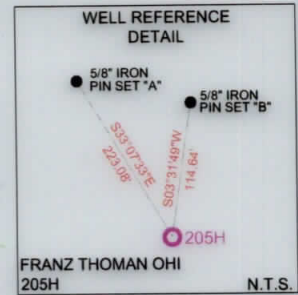
COMPANY: **SWN** Production Company, LLC **SWN** Production Company™

FRANZ THOMAN OHI  
OPERATOR'S WELL #: 205H  
API WELL #: 47 069 00313  
STATE COUNTY PERMIT

WELL TYPE: OIL  WASTE DISPOSAL  PRODUCTION  DEEP  GAS  LIQUID INJECTION  STORAGE  SHALLOW   
WATERSHED: UPPER OHIO SOUTH ELEVATION: 1,137.3'  
DISTRICT: RICHLAND COUNTY: OHIO QUADRANGLE: TILTONVILLE, OH-WV  
SURFACE OWNER: FRANZ THOMAN ACREAGE: ±69.418  
OIL & GAS ROYALTY OWNER: FRANZ THOMAN ACREAGE: ±69.418  
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: 5,884' TVD 24,495' 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:
○ EXISTING BOTTOM HOLE		06-03-2020
☆ EXISTING / PRODUCING WELLHEAD		API NO: 47-069-00313
LPL☆ EXISTING LANDING POINT LOCATION		DRAWN BY: R. GRIMES
○ PROPOSED SURFACE HOLE / BOTTOM HOLE		SCALE: 1" = 3000'
LPL☆ PROPOSED LANDING POINT LOCATION		DRAWING NO: 2018-781
		WELL LOCATION PLAT



NOTES ON SURVEY

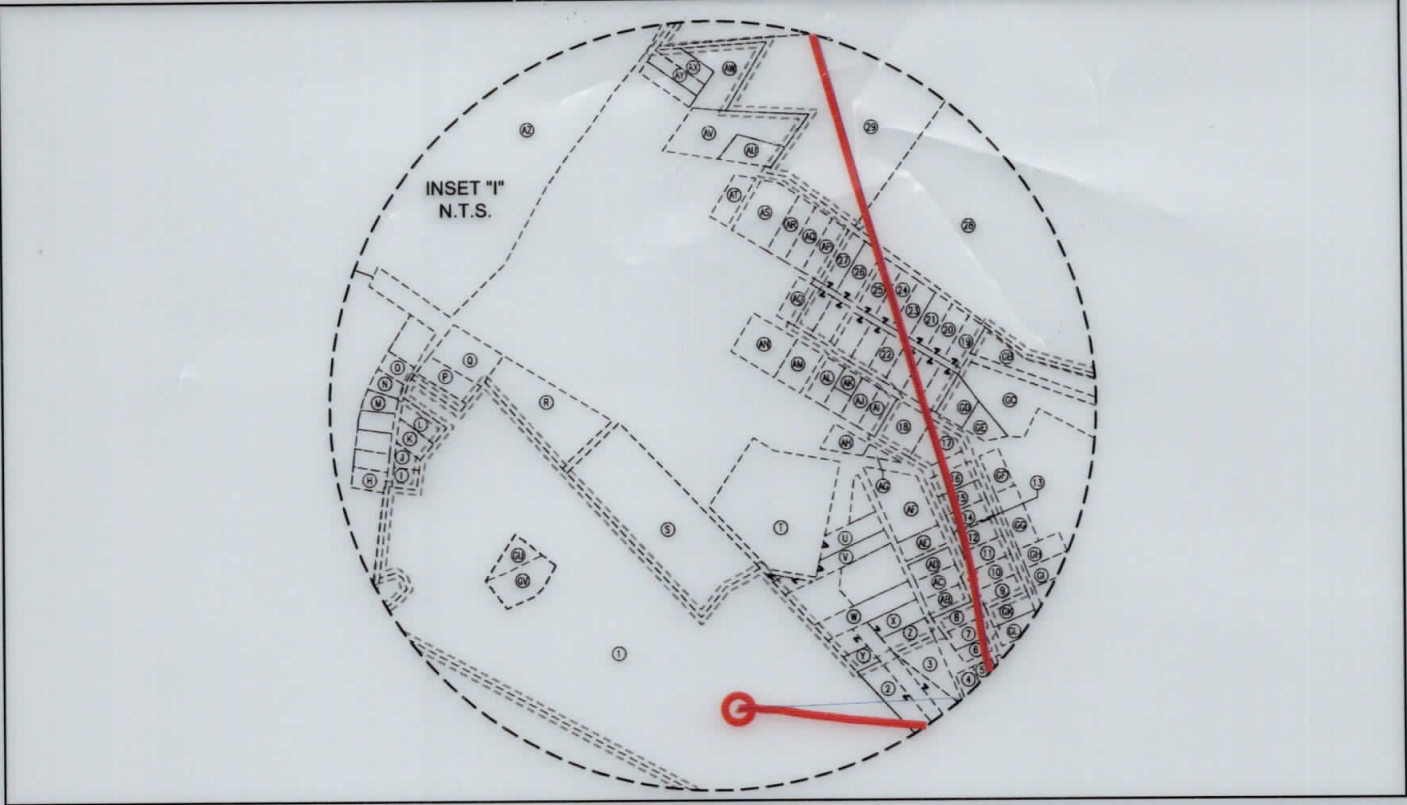
- COORDINATE SYSTEM IS UTM NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.
- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
- THIS PLAT DOES NOT 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.

SHL

BHL



LONGITUDE: 80°40'00" BOTTOM HOLE (2000' SCALE)  
LONGITUDE: 80°37'30" SURFACE HOLE (2000' SCALE)



WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	FRANZ THOMAN (S)/(R)	04-R8-62.0
TRACT	SURFACE OWNER	TAX PARCEL
2	RUSSELL TERAMANA & ROSEANN SMITH MELVIN (LIFE ESTATE)	04-R8Q-02.0
3	RUSSELL TERAMANA & ROSEANN SMITH MELVIN (LIFE ESTATE)	04-R8Q-17.0
4	ROSEANN LEE HOOD	04-R8Q-18.0
5	ROSEANN LEE HOOD	04-R8Q-19.0
6	ROSEANN LEE HOOD	04-R8Q-25.0
7	RUSSELL TERAMANA & ROSEANN SMITH MELVIN (LIFE ESTATE)	04-R8Q-26.0
8	PAULA J. & EDWARD C. TOMASIK	04-R8Q-27.0
9	SHARON K. WOLEN	04-R8Q-41.0
10	SUZANNE MOZENA	04-R8Q-40.0
11	SUZANNE MOZENA	04-R8Q-39.0
12	DONALD W. & AMY K. ELLIOT	04-R8Q-38.0
13	DONALD W. & AMY K. ELLIOT	04-R8Q-37.1
14	JOLLY W., JR & KAREN M. WHEELER	04-R8Q-37.0
15	ELAINE ANN DANEHART	04-R8Q-36.0
16	CLEMET R. KURNER	04-R8Q-35.0
17	ARDEN J. & ROSALIE WELSH	04-R8L-38.0
18	RITA MARIE PAGENDARM	04-R8L-35.0
19	ALBERT D. & BARBARA J. ROBRECHT	04-R8L-21.0
20	ALBERT D. & BARBARA J. ROBRECHT	04-R8L-22.0
21	MICHAEL L. & PATRICIA M. ALLEN	04-R8L-23.0
22	MICHAEL L. & PATRICIA M. ALLEN	04-R8L-24.0
23	SILCO, LLC (C/O: ROBINSON RICHARD)	04-R8L-13.0
24	MICHAEL J. BOWMAN & EKATERINA BOWMAN	04-R8L-25.0
25	CHAD D. & MELISSA E. LIZON	04-R8L-26.0
26	WILLIAM S. CALVERT	04-R8L-27.0
27	WILLIAM S. CALVERT	04-R8L-28.0
28	TUNNEL RIDGE, LLC	04-R8-27.7
29	ADAM B. & STACEY L. CAMPBELL	04-R8F-03.0
30	CARRIE M. & RICHARD M. JOHNSON	04-R8-32.0
31	JOHN A. & PATRICIA A. HAGLEROAD	04-R8-31.0
32	HELGA DIDRICKSEN; DARELL E. & CYNTHIA A. ICKLER	04-R8-30.0
33	DARRELL E. & CYNTHIA A. ICKLER	04-R8-30.2
34	MARGUERITE A. COLEMAN	04-R8-30.1
35	WILLIAM F. WENDEL	04-R8-33.1
36	JOHN P. & PAMELA J. BARBALEY	04-R8-33.2
37	RICHARD, JR. & LINDA L. CAROLL	04-R8-33.0
38	THE KATHLEEN S. CRAFT FOUNDATION & THE JOSEPH W. CRAFT, III FOUNDATION	04-R8-06.0
39	THE KATHLEEN S. CRAFT FOUNDATION & THE JOSEPH W. CRAFT, III FOUNDATION	04-R5-43.0
40	THE KATHLEEN S. CRAFT FOUNDATION & THE JOSEPH W. CRAFT, III FOUNDATION	04-R5-42.1
41	HELEN TAYLOR	04-R5-12.1
42	THERESE M. FLICK	04-R5-15.0
43	DALE A. & JENNIFER VILLANI	04-R5-16.0
44	ROBERT N. & CHARLOTTE L. CONNER	04-R5-17.0
45	TRENA A. WOLFE	04-R5-18.1
46	PATRICIA ROUSH	04-R5-18.0
47	ERVAN D. & NANCY G. TRUBIANO	04-R5-19.0
48	BRIAN W. & MELINDA K. SOWIZRAL	04-R5-20.1
49	DENNIS J. & SHEINA L. HOSKINS	04-R5-20.4
50	VELMA L. TAGGART (C/O: VELMA L. HEWITT)	04-R5-20.0

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS		
TRACT	SURFACE OWNER	TAX PARCEL
51	KIMBERLY TAGGART	04-R5-20.3
52	HAROLD & LINDA COAST	04-R5-02.9
53	JAMES M. & NANCY L. FRYE	04-R5-02.10
54	CHARLES H. FRYE & ET AL (C/O: DORIS ALTMAYER)	04-R5-06.0
55	THOMAS H. & MARGARET A. STENGER	04-R5-62.0
56	THOMAS H. & MARGARET A. STENGER	04-R2-06.0
57	MATTHEW T. BURKE	04-R2-6.13
58	SCOTT & CHRISTINA DEMTZ	04-R2-6.21
59	THOMAS H. & MARGARET A. STENGER	04-R2-06.1
60	MARY E. MIDCAP	04-R2-14.0
61	ROBERT L. & DELMAS HUFFMAN	04-R2-10.0
62	PHILLIP N. WAGNER & DENNIS D. WAGNER	04-R2-11.0
63	WEST VIRGINIA DIVISION OF NATURAL RESOURCES	SHORT CREEK
64	ERICA HONE, VAUGHN C. HONE, JR., & JOHN PATRICK MCCONAUGHEY	03-B45D-09.0
65	ERICA HONE, VAUGHN C. HONE, JR., & JOHN PATRICK MCCONAUGHEY	03-B45D-10.0
66	DONNA L. WALKER, AMANDA BROWN, & FRED KELLER, II	03-B45D-20.0
67	FRANK BIEGA & CONNIE BIEGA	03-B45D-32.0
68	LAMBROS TSUHLARES	03-B40S-16.0

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	SANDSCREST FOUNDATION, INC	04-R11-15.0
B	TUNNEL RIDGE, LLC	04-R8-62.5
C	TUNNEL RIDGE, LLC	04-R8-62.4
D	TUNNEL RIDGE, LLC	04-R8P-14.0
E	SHIRLEY M. WEAVER	04-R8P-02.0
F	TUNNEL RIDGE, LLC	04-R8P-16.0
G	THE KATHLEEN S. CRAFT FOUNDATION & THE JOSEPH W. CRAFT, III FOUNDATION	04-R8-51.0
H	JOHN M. MCGEE	04-R8P-17.0
I	DONALD P. GAYDA	04-R8P-18.0
J	CHARLES R. BOND	04-R8K-110.0
K	TYLER S. SCHWERTFEGER	04-R8K-111.0
L	TYLER S. SCHWERTFEGER	04-R8K-112.0
M	ELMER K. REED	04-R8K-106.0
N	ELMER K. REED	04-R8K-105.0
O	BERNARD H. BOZENSKE & KIMBERLY J. BOZENSKE	04-R8K-104.0
P	RAY B. & ANN M. WILSON	04-R8-62.7
Q	ERIC DURELL & CHERYL LYNN RICHARDSON	04-R8-62.6
R	DAVID R. & K. MULDREW	04-R8K-101.0
S	DELORA L. TAYLOR	04-R8K-100.0
T	JOHN T. WRIGHT	04-R8P-11.0
U	JACQUELINE M. SUTTON	04-R8Q-10.0
V	AMY D. DAGUE	04-R8Q-11.0
W	KAREN M. WHEELER	04-R8Q-14.0
X	FRANK J. & S.R. TAROVISKY	04-R8Q-28.0
Y	PAULA J. & EDWARD C. TOMASIK	04-R8Q-03.0
Z	PAULA J. & EDWARD C. TOMASIK	04-R8Q-16.0
AA	PAULA J. & EDWARD C. TOMASIK	04-R8Q-27.0
AB	FRANK J. & S.R. TAROVISKY	04-R8Q-28.0
AC	KAREN M. WHEELER	04-R8Q-29.0
AD	ROGER L. MOORE	04-R8Q-30.1
AE	STEVEN M. GORBY	04-R8Q-31.0

09/10/2021

REVISIONS:		
COMPANY:		
OPERATOR'S	FRANZ THOMAN OHI	
WELL #:	205H	
DISTRICT:	COUNTY:	STATE:
RICHLAND	OHIO	WV
DATE:	06-03-2020	
API NO:	47-069-00313	
DRAWN BY:	R. GRIMES	
SCALE:	N/A	
DRAWING NO:	2018-781	
WELL LOCATION PLAT		



ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
GP	CHAD MARTIN	04-R2-06.16
GQ	WILLIAM S. & LAURA J. DONOHEW	04-R2-06.8
GR	WILLIAM S. & LAURA J. DONOHEW	04-R2-06.11
GS	TODD & PATRICIA STENGER	04-R2-06.23
GT	DENNIS J. & SHEINA L. HOSKINS	04-R5-20.6
GU	KASMIR MAJEWSKI & EDWARD A. MAJEWSKI	04-R8-62.2
GV	KASMIR MAJEWSKI & EDWARD A. MAJEWSKI	04-R8-62.8

09/10/2021

REVISIONS:

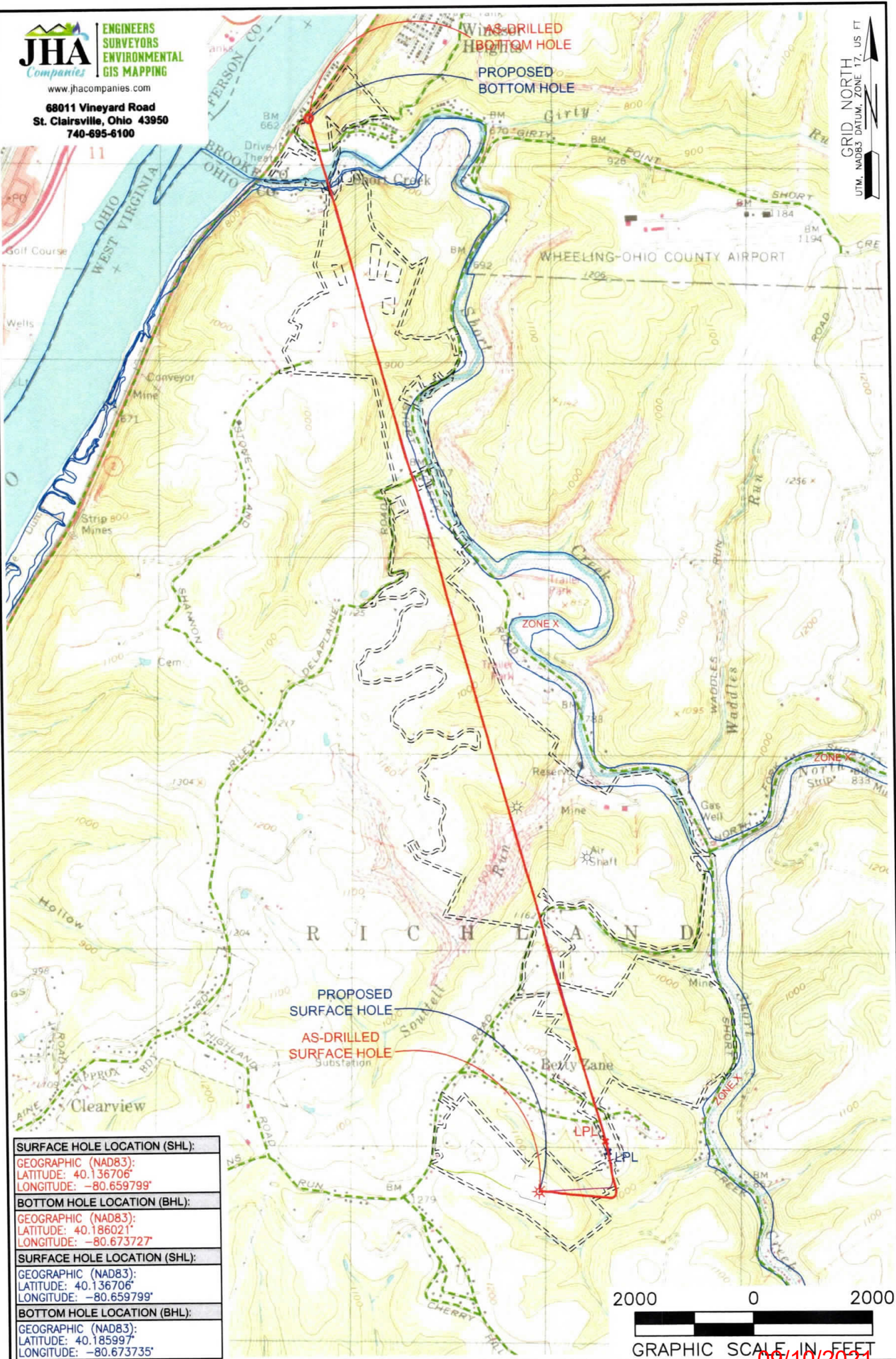
COMPANY:

**SWN**  
Production Company, LLC

**SWN** <sup>R<sup>2</sup></sup>/<sub>A</sub> <sup>V+</sup>®  
Production Company™

OPERATOR'S	FRANZ THOMAN OHI		DATE: 06-03-2020
WELL #:	205H		API NO: 47-069-00313
DISTRICT:	COUNTY:	STATE:	SCALE: N/A
RICHLAND	OHIO	WV	DRAWING NO: 2018-781
			WELL LOCATION PLAT





<b>SURFACE HOLE LOCATION (SHL):</b>
GEOGRAPHIC (NAD83): LATITUDE: 40.136706° LONGITUDE: -80.659799°
<b>BOTTOM HOLE LOCATION (BHL):</b>
GEOGRAPHIC (NAD83): LATITUDE: 40.186021° LONGITUDE: -80.673727°
<b>SURFACE HOLE LOCATION (SHL):</b>
GEOGRAPHIC (NAD83): LATITUDE: 40.136706° LONGITUDE: -80.659799°
<b>BOTTOM HOLE LOCATION (BHL):</b>
GEOGRAPHIC (NAD83): LATITUDE: 40.185997° LONGITUDE: -80.673735°



**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.

RECEIVED  
 Office of Oil and Gas  
 JAN 29 2021  
 WV Department of Environmental Protection

**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> FRANZ THOMAN OHI	<b>WELL #</b> 205H	<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> RICHLAND
<b>SURFACE OWNER:</b> FRANZ THOMAN	<b>USGS 7 1/2 QUADRANGLE MAP NAME:</b> TILTONVILLE, OH-WV		
			<b>API #</b> 47-069-00313