

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

API 47 - 103 - 03252 County WETZEL District PROCTOR
Quad WILEYVILLE, WV Pad Name SWN A WTZ PAD1 Field/Pool Name VICTORY WET FIELD
Farm name SWN PRODUCTION COMPANY, LLC Well Number SWN A WTZ 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 4,392,596.27 Easting 530,906.19
Landing Point of Curve Northing 4,392,855.42 Easting 531,079.07
Bottom Hole Northing 4,396,491.89 Easting 527,029.78

Elevation (ft) 1,344' 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 11/29/2018 Date drilling commenced 5/16/2019 Date drilling ceased 6/10/2019
Date completion activities began 12/20/2019 Date completion activities ceased 3/1/2020
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 300' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1,341' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 1,245' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

DH
6-1-20

API 47- 103 - 03252 Farm name SWN PRODUCTION COMPANY, LLC Well number SWN A WTZ 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	406	NEW	J-55/54.50#		Y; 21 BBLS
Coal	SEE INTERMEDIATE						
Intermediate 1	12.25	9.625	2,834	NEW	J-55/36#		Y; 45 BBLS
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	25,772	NEW	HCP-110/20#		Y; 80 BBLS
Tubing		2.875		NEW			N
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	GROUT TO SURFACE				SURFACE	24
Surface	CLASS A	419	15.60	1.19	498.61	SURFACE	8
Coal	SEE INTERMEDIATE						
Intermediate 1	CLASS A	1,130	16.00	1.12	1,265.6	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	4,846	15.60	1.18	5,718.28	SURFACE	24
Tubing							

Drillers TD (ft) 25,772 Loggers TD (ft) 25,772
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 6,700'

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- 103 - 03252 Farm name SWN PRODUCTION COMPANY, LLC Well number SWN A WTZ 205H

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- 103 - 03252

Farm name SWN PRODUCTION COMPANY, LLC Well number SWN A WTZ 205H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>MARCELLUS</u>	<u>7,347'</u>	<u>TVD</u>	<u>7,700'</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 2136 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 27,401 mcfpd Oil 223 bpd NGL _____ bpd Water 446 bpd
 GAS MEASURED BY Estimated Orifice Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>		<u>BOTTOM</u>		<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H₂S, ETC)</u>
	<u>DEPTH IN FT NAME TVD</u>	<u>DEPTH IN FT TVD</u>	<u>DEPTH IN FT MD</u>	<u>DEPTH IN FT MD</u>	
	<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 GORGANS MILL RD City THE WOODLANDS State TX Zip 77380

Cementing Company BJ SERVICES
 Address 11211 FM 2920 City TOMBALL State TX Zip 77377

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

Please insert additional pages as applicable.

Completed by DENISE GRANTHAM Telephone 832-796-6139
 Signature *Denise Grantham* Title REGULATORY TECHNICIAN Date 5/8/2020

**SWN A WTZ 205H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG
1	12/8/2019	25,723	25,629	36
2	12/20/2019	25,593	25,416	36
3	12/21/2019	25,383	25,205	36
4	12/21/2019	25,172	24,995	36
5	12/22/2019	24,962	24,784	36
6	12/23/2019	24,751	24,574	36
7	12/24/2019	24,541	24,364	36
8	12/25/2019	24,330	24,153	36
9	1/6/2020	24,120	23,943	42
10	1/7/2020	23,910	23,730	42
11	1/8/2020	23,702	23,522	42
12	1/8/2020	23,484	23,311	42
13	1/9/2020	23,276	23,101	42
14	1/9/2020	23,072	22,891	42
15	1/9/2020	22,857	22,680	42
16	1/10/2020	22,651	22,470	42
17	1/10/2020	22,441	22,259	42
18	1/11/2020	22,226	22,049	42
19	1/11/2020	22,016	21,839	42
20	1/11/2020	21,802	21,628	42
21	1/11/2020	21,592	21,418	42
22	1/12/2020	21,385	21,207	42
23	1/12/2020	21,174	20,997	42
24	1/13/2020	20,964	20,786	42
25	1/13/2020	20,753	20,576	42
26	1/13/2020	20,543	20,366	42
27	1/14/2020	20,333	20,155	42
28	1/14/2020	20,122	19,945	42
29	1/14/2020	19,912	19,734	42
30	1/15/2020	19,701	19,524	42
31	1/15/2020	19,491	19,313	42
32	1/17/2020	19,280	19,103	42
33	1/17/2020	19,070	18,893	42
34	1/18/2020	18,860	18,682	42
35	1/18/2020	18,649	18,472	42
36	1/18/2020	18,439	18,261	42
37	1/19/2020	18,228	18,051	42
38	1/19/2020	18,018	17,841	42
39	1/20/2020	17,807	17,630	42
40	1/20/2020	17,597	17,420	42
41	1/20/2020	17,387	17,209	42
42	1/21/2020	17,176	16,999	42

**SWN A WTZ 205H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG
43	1/22/2020	16,966	16,788	42
44	1/22/2020	16,755	16,578	42
45	1/23/2020	16,541	16,368	42
46	1/24/2020	16,331	16,157	42
47	1/24/2020	16,123	15,947	42
48	1/25/2020	15,914	15,736	84
49	1/26/2020	15,703	15,526	42
50	1/27/2020	15,493	15,315	42
51	1/28/2020	15,282	15,105	42
52	1/28/2020	15,072	14,895	42
53	1/29/2020	14,862	14,684	42
54	1/29/2020	14,651	14,474	42
55	1/30/2020	14,441	14,263	42
56	1/30/2020	14,230	14,053	42
57	1/31/2020	14,020	13,843	42
58	2/1/2020	13,809	13,632	42
59	2/2/2020	13,599	13,422	42
60	2/2/2020	13,389	13,211	42
61	2/3/2020	13,178	13,001	42
62	2/3/2020	12,968	12,790	42
63	2/4/2020	12,757	12,585	42
64	2/4/2020	12,547	12,370	42
65	2/5/2020	12,337	12,159	42
66	2/6/2020	12,126	11,949	42
67	2/6/2020	11,916	11,738	42
68	2/7/2020	11,705	11,528	42
69	2/8/2020	11,495	11,318	42
70	2/9/2020	11,284	11,107	42
71	2/9/2020	11,074	10,897	42
72	2/10/2020	10,864	10,686	42
73	2/10/2020	10,653	10,476	42
74	2/12/2020	10,443	10,265	42
75	2/12/2020	10,232	10,055	42
76	2/13/2020	10,022	9,845	42
77	2/16/2020	9,812	9,634	42
78	2/16/2020	9,601	9,424	42
79	2/16/2020	9,391	9,213	42
80	2/17/2020	9,180	9,003	42
81	2/17/2020	8,970	8,792	42
82	2/18/2020	8,759	8,582	42
83	2/18/2020	8,549	8,372	42
84	2/19/2020	8,339	8,168	42

**SWN A WTZ 205H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG
85	2/20/2020	8,128	7,956	42
86	2/21/2020	7,918	7,738	42

**SWN A WTZ 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
1	12/20/2019	57	8,011	6,250	3,969	237,580	7,522	0
2	12/20/2019	65	8,119	5,986	4,758	334,370	9,182	0
3	12/21/2019	62	8,145	6,241	4,238	293,700	11,830	0
4	12/22/2019	64	7,087	5,574	4,520	337,590	11,718	0
5	12/22/2019	66	7,902	5,923	4,712	315,850	9,496	0
6	12/23/2019	69	8,016	5,875	5,244	423,850	17,438	0
7	12/25/2019	65	7,209	5,979	5,277	149,534	6,677	0
8	1/4/2020	73	8,118	5,968	4,462	320,140	11,305	0
9	1/6/2020	66	7,516	5,906	4,391	311,450	12,703	0
10	1/7/2020	68	8,184	5,575	4,341	311,570	13,368	0
11	1/8/2020	70	8,149	5,660	4,341	311,880	9,023	0
12	1/9/2020	69	8,172	5,903	4,356	308,150	7,935	0
13	1/9/2020	68	8,170	5,883	4,356	308,810	8,447	0
14	1/9/2020	68	8,179	5,578	4,356	309,870	8,117	0
15	1/10/2020	66	8,246	5,210	4,548	305,840	8,328	0
16	1/10/2020	64	7,590	5,182	4,753	309,410	9,197	0
17	1/11/2020	73	8,376	6,450	4,550	307,740	9,510	0
18	1/11/2020	73	8,164	6,212	5,068	303,870	7,978	0
19	1/11/2020	71	8,229	5,843	4,871	308,770	7,941	0
20	1/11/2020	71	7,436	6,630	4,270	312,260	8,863	0
21	1/12/2020	75	8,399	5,890	4,554	304,210	8,226	0
22	1/12/2020	74	8,211	5,389	4,582	313,150	8,386	0
23	1/12/2020	72	8,368	6,583	4,460	313,450	8,221	0
24	1/13/2020	67	8,024	6,075	4,812	310,610	7,927	0
25	1/13/2020	68	8,138	5,308	4,862	311,650	8,098	0
26	1/13/2020	70	8,510	6,470	4,586	313,700	8,357	0
27	1/14/2020	74	8,421	6,125	4,465	310,690	7,838	0
28	1/14/2020	67	8,130	5,231	4,824	304,550	7,507	0
29	1/15/2020	59	7,185	5,798	4,456	311,530	7,821	0
30	1/15/2020	71	8,362	5,398	4,348	312,700	7,939	0
31	1/16/2020	69	8,236	5,711	4,329	310,100	7,440	0
32	1/17/2020	68	8,061	6,053	4,872	308,170	7,343	0
33	1/17/2020	69	8,193	5,902	4,431	308,170	7,464	0
34	1/18/2020	73	8,122	5,359	4,467	307,810	7,383	0
35	1/18/2020	61	7,917	5,569	4,031	305,560	8,026	0
36	1/19/2020	70	8,103	5,913	4,520	298,860	7,454	0
37	1/19/2020	76	8,284	5,905	4,520	310,790	7,623	0
38	1/19/2020	74	8,303	5,890	4,339	312,050	7,324	0
39	1/20/2020	76	8,219	5,390	5,056	311,090	7,428	0
40	1/20/2020	65	8,220	6,231	4,925	315,760	7,583	0
41	1/21/2020	72	8,320	6,112	5,105	313,630	7,371	0
42	1/21/2020	72	8,337	4,184	4,360	313,890	7,432	0
43	1/22/2020	70	7,698	6,135	4,230	312,550	7,700	0
44	1/23/2020	69	8,117	5,004	4,106	311,270	7,928	0
45	1/24/2020	79	7,990	5,654	4,416	307,230	7,685	0
46	1/24/2020	76	8,061	5,914	4,558	309,700	7,608	0
47	1/25/2020	79	7,948	6,183	4,432	309,020	6,956	0
48	1/26/2020	82	8,244	5,401	5,013	310,030	10,793	0
49	1/27/2020	92	8,537	5,291	4,308	312,380	6,958	0
50	1/28/2020	89	8,640	5,577	4,420	308,080	6,556	0

**SWN A WTZ 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/othr
51	1/28/2020	79	8,326	6,201	4,620	312,540	6,988	0
52	1/29/2020	95	8,496	5,779	4,875	310,800	5,326	0
53	1/29/2020	83	7,876	5,033	5,006	250,120	7,034	0
54	1/30/2020	93	8,450	6,486	4,752	306,790	7,086	0
55	1/30/2020	89	8,178	4,973	5,134	307,040	6,369	0
56	1/31/2020	92	8,467	5,743	4,659	310,830	7,239	0
57	2/1/2020	92	8,469	5,512	4,921	313,810	6,412	0
58	2/1/2020	93	8,329	5,380	5,211	313,880	6,406	0
59	2/2/2020	93	8,230	5,707	4,610	308,340	7,045	0
60	2/2/2020	94	8,211	5,801	5,019	311,180	7,485	0
61	2/3/2020	92	8,296	6,468	4,726	313,520	7,045	0
62	2/3/2020	88	8,046	5,563	5,314	234,000	8,086	0
63	2/4/2020	92	7,827	5,772	4,469	311,020	8,090	0
64	2/5/2020	84	7,962	5,769	5,125	307,010	7,715	0
65	2/5/2020	85	8,155	5,681	5,219	316,000	7,315	0
66	2/6/2020	94	8,259	6,582	4,560	232,420	6,245	0
67	2/7/2020	91	8,188	6,445	4,819	323,950	7,671	0
68	2/8/2020	83	8,094	6,138	4,844	319,620	8,526	0
69	2/9/2020	97	8,204	6,147	5,214	321,080	8,407	0
70	2/9/2020	86	7,862	6,654	4,837	318,200	7,465	0
71	2/10/2020	94	8,062	6,620	4,908	319,680	7,577	0
72	2/10/2020	83	8,075	6,645	4,960	315,150	8,021	0
73	2/11/2020	91	7,962	5,449	5,771	311,980	7,615	0
74	2/12/2020	84	7,725	5,320	5,058	315,062	7,714	0
75	2/13/2020	89	8,051	6,604	4,848	315,140	7,606	0
76	2/15/2020	81	8,037	5,869	5,923	316,300	8,549	0
77	2/16/2020	87	7,866	6,302	4,875	318,830	7,228	0
78	2/16/2020	90	8,009	6,826	4,853	314,760	6,949	0
79	2/16/2020	82	7,947	5,411	4,734	317,670	8,966	0
80	2/17/2020	96	7,946	6,527	4,720	320,260	7,769	0
81	2/18/2020	91	7,826	5,668	4,724	322,250	6,895	0
82	2/18/2020	96	7,775	6,241	5,243	316,870	6,936	0
83	2/19/2020	91	8,025	6,084	4,535	324,340	7,447	0
84	2/20/2020	91	7,901	6,778	4,661	326,960	8,031	0
85	2/20/2020	91	7,412	6,421	4,656	231,700	5,661	0
86	2/21/2020	90	7,498	6,750	4,375	317,640	6,986	0

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/20/2019
Job End Date:	2/21/2020
State:	West Virginia
County:	Wetzel
API Number:	47-103-03251-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	SWN A WTZ 205
Latitude:	39.68263889
Longitude:	-80.63959328
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,196
Total Base Water Volume (gal):	28,961,536
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
Ecopol-FEAC	SWN Well Services	Iron Control					
				Listed Below			
Sand	SWN Well Services	Proppant					
				Listed Below			

Plexaid 655WG	SWN Well Services	Scale Inhibitor					
				Listed Below			
Tolicide PS 50A	SWN Well Services	Biocide					
				Listed Below			
Econo-CI200	SWN Well Services	Corrosion Inhibitor					
				Listed Below			
SWN FRW-13LA	SWN Well Services	Friction Reducer					
				Listed Below			
HCL	SWN Well Services	Solvent					
				Listed Below			
Base Water	Operator	Base Fluid					
				Listed Below			

Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.

			Water	7732-18-5	100.00000	89.58476	Density = 8.345
			Crystalline Silica, quartz	14808-60-7	100.00000	9.81176	
			Water	7732-18-5	85.00000	0.48131	
			Hydrochloric Acid	7647-01-0	15.00000	0.06876	
			Petroleum Distillates, Hydrotreated	64742-47-8	25.00000	0.02739	
			Tetrakis	55566-30-8	55.00000	0.01442	
			Glycerin	56-81-5	50.00000	0.00308	
			Ammonium Chloride	12125-02-9	2.00000	0.00219	

			Oleic Acid Diethanolamide	93-83-4	1.50000	0.00164	
			Alcohols, C12-1, ethoxylated	68551-12-2	1.50000	0.00164	
			Acetic Acid	64-19-7	37.50000	0.00092	
			Diethylenetriamine penta	15827-60-8	10.00000	0.00062	
			Methanol	67-56-1	80.00000	0.00056	
			Citric Acid	77-92-9	22.50000	0.00055	
			Acrylic acid terpolymer	397256-50-7	1.00000	0.00026	
			Oxyalkylated fatty acid	68951-67-7	9.67400	0.00007	
			Fatty acids	61790-12-3	5.02700	0.00004	
			Modified thiourea polymer	68527-49-1	4.74600	0.00003	
			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)



Well Name: SWN A WTZ 205H

47103032510000

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	300.00	300.00	
Top of Salt Water	1341.00	1341.00	NA	NA	
Pittsburgh Coal	1245.00	1245.00	1317.00	1317.00	
Pottsville (ss)	1317.00	1317.00	1781.00	1781.00	
Raven Cliff (ss)	1781.00	1781.00	1870.00	1870.00	
Maxton (ss)	1870.00	1870.00	2437.00	2437.00	
Big Injun (ss)	2437.00	2437.00	3039.00	3039.00	
Berea (siltstone)	3039.00	3039.00	6806.00	6681.00	
Rhinstreet (shale)	6806.00	6681.00	7135.00	6996.00	
Cashaqua (shale)	7135.00	6996.00	7275.00	7119.00	
Middlesex (shale)	7275.00	7119.00	7401.00	7214.00	
Burket (shale)	7401.00	7214.00	7440.00	7240.00	
Tully (ls)	7440.00	7240.00	7488.00	7266.00	
Mahantango (shale)	7488.00	7266.00	7700.00	7347.00	
Marcellus (shale)	7700.00	7347.00	NA	NA	GAS