

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

API 47 - 103 - 03520 County WETZEL District CLAY  
Quad LITTLETON Pad Name VERNON JOHNSON WTZ Field/Pool Name VICTORY FIELD WET  
Farm name VERNON S. JOHNSON ESTATE Well Number VERNON JOHNSON WTZ 401H  
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 4,396,555.025 Easting 538,927.278  
Landing Point of Curve Northing 4,396,134.602 Easting 539,310.053  
Bottom Hole Northing 4,400,555.262 Easting 534,508.437

Elevation (ft) 1,431.6' 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  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
SOBM

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Date permit issued 8/19/2022 Date drilling commenced 10/15/2022 Date drilling ceased 12/19/2022  
Date completion activities began 1/28/2023 Date completion activities ceased 3/27/2023  
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 440' Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft 1955' Void(s) encountered (Y/N) depths \_\_\_\_\_  
Coal depth(s) ft 1295' Cavern(s) encountered (Y/N) depths \_\_\_\_\_  
Is coal being mined in area (Y/N) N

**APPROVED**

Reviewed by:  
12/08/2023  
STP  
7-21-23

API 47- 103 - 03520 Farm name VERNON S. JOHNSON ESTATE Well number VERNON JOHNSON WTZ 401H

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	136	NEW	J-55/94#		Y
Surface	17.5	13.375	491	NEW	J-55/54.5#		Y; 32 BBLS
Coal							
Intermediate 1	12.25	9.625	3,099	NEW	J-55/36#		Y; 30 BBLS
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	6	29,999	NEW	P-110 HP/24#		N
Tubing			0				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	502	15.6	1.20	602.40	SURFACE	8
Coal							
Intermediate 1	CLASS A	1,111	15.6	1.18	1270.86	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	5,453	15.0	1.29	7034.37	2,057	24
Tubing							

Drillers TD (ft) 30,000      Loggers TD (ft) 30,000  
 Deepest formation penetrated MARCELLUS      Plug back to (ft) 29,914  
 Plug back procedure N/A

Kick off depth (ft) 7,128' MD

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

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

SURFACE: 7 CENTRALIZERS - EVERY THIRD JOINT OF CASING  
 INTERMEDIATE: 39 CENTRALIZERS - EVERY THIRD JOINT OF CASING  
 PRODUCTION: 631 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 \_\_\_\_\_

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

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

12/08/2023 *JM*

API 47- 103 - 03520

Farm name VERNON S. JOHNSON ESTATE

Well number VERNON JOHNSON WTZ 401H

### PERFORATION RECORD

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

Please insert additional pages as applicable.

### STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
	SEE	ATTACHMENT	2					

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>MARCELLUS</u>	<u>7650'</u>	<u>TVD</u>	<u>8412'</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 1418 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 34,380 mcfpd Oil 0 bpd NGL \_\_\_\_\_ bpd Water 1512 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>TOP</u>	<u>BOTTOM</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H<sub>2</sub>S, 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 GROGANS MILL RD City THE WOODLANDS State TX Zip 77380

Cementing Company SCHLUMBERGER WELL SERVICES  
Address 110 SCHLUMBERGER DRIVE City SUGARLAND State TX Zip 77478

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 SPECIALIST Date 6.13.2023



# Hydraulic Fracturing Fluid Product Component Information Disclosure

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*Handwritten signature*

Job Start Date:	1/28/2023
Job End Date:	3/11/2023
State:	West Virginia
County:	Wetzel
API Number:	47-103-03520-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	VERNON JOHNSON WTZ 401
Latitude:	39.71797923
Longitude:	-80.54582566
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,508
Total Base Water Volume (gal):	37,168,938
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
Base Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	90.38875	Density = 8.345
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	85.00000	0.34128	

			Water	7732-18-5	100.00000	0.34128	
StimSTREAM SC 398 CW	SWN Well Services	Scale Inhibitor					
				Listed Below			
StimSTREAM FR 9800	SWN Well Services	Friction Reducer					
				Listed Below			
Sand	SWN Well Services	Proppant					
				Listed Below			
StimSTREAM FR 2800	SWN Well Services	Friction Reducer					
				Listed Below			
HCL	SWN Well Services	Solvent					
				Listed Below			
Ferriplex 80	SWN Well Services	Iron Control					
				Listed Below			
Clearal 270	SWN Well Services	Biocide					
				Listed Below			
FSTI-CI-02	SWN Well Services	Corrosion Inhibitor					
				Listed Below			

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



5A

		Crystalline Silica, quartz	14808-60-7	100.00000	9.18208	
		Hydrochloric Acid	7647-01-0	15.00000	0.04613	
		Glutaraldehyde	111-30-8	25.00000	0.00249	
		Ethylene glycol	107-21-1	40.00000	0.00153	
		Quaternary Ammonium compounds, Benzyl-C12-C16-alkyldimethyl, Chlorides	68424-85-1	7.50000	0.00075	RECEIVED Office of Oil and Gas JUN 14 2023 WV Department of Environmental Protection
		Didecyldimethylammonium Chloride	7173-51-5	7.50000	0.00075	
		Sodium Erythorbate	6381-77-7	100.00000	0.00066	
		Ethanol	64-17-5	4.00000	0.00040	
		Poly(oxy-1,2-ethanediyl), .alpha.-(nonylphenyl)-.omega.-hydroxy-	9016-45-9	10.00000	0.00012	
		N,N-Dimethylformamide	68-12-2	10.00000	0.00012	
		Cinnamaldehyde	104-55-2	10.00000	0.00012	
		Triethyl phosphate	78-40-0	5.00000	0.00006	
		Isopropyl alcohol	67-63-0	5.00000	0.00006	
		2-Butoxyethanol	111-76-2	5.00000	0.00006	
		benzyl chloridequaternized	72480-70-7	5.00000	0.00006	
		1-Decanol	112-30-1	5.00000	0.00006	
		1-Octanol	111-87-5	5.00000	0.00006	

\* 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:

Vernon Johnson WTZ 401H

47103035200000

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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	440.00	440.00	
Top of Salt Water	1955.00	1892.00	NA	NA	
Pittsburgh Coal	1295.00	1283.00	1303.00	1291.00	
Pottsville (ss)	1422.00	1403.00	1456.00	1435.00	
Raven Cliff (ss)	1951.00	1887.00	2240.00	2148.00	
Maxton (ss)	2240.00	2148.00	2634.00	2513.00	
Big Injun (ss)	2634.00	2513.00	3302.00	3119.00	
Berea (siltstone)	3302.00	3119.00	3336.00	3151.00	
Rhinestreet (shale)	7513.00	6992.00	7918.00	7375.00	
Middlesex (shale)	7918.00	7375.00	8054.00	7480.00	
Burket (shale)	8054.00	7480.00	8101.00	7513.00	
Tully (ls)	8101.00	7513.00	8147.00	7541.00	
Mahantango (shale)	8147.00	7541.00	8412.00	7650.00	
Marcellus (shale)	8412.00	7650.00	NA	NA	GAS



VERNON JOHNSON WTZ 401H

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	1/28/2023	87.4	9,386	10,108	4,744	176,310	6,768	0
2	1/29/2023	83.1	9,140	6,690	4,687	307,610	10,361	0
3	1/30/2023	78	10,286	5,615	4,919	313,520	10,617	0
4	1/30/2023	76.6	9,964	6,018	4,729	304,880	10,066	0
5	1/30/2023	73.2	10,051	6,104	5,006	309,830	10,086	0
6	1/30/2023	81	10,838	6,403	5,195	301,440	9,438	0
7	1/31/2023	74	9,175	7,465	5,112	308,950	9,497	0
8	1/31/2023	70.8	10,619	7,102	5,460	300,270	9,603	0
9	2/1/2023	72.2	10,538	6,425	5,325	300,050	11,029	0
10	2/1/2023	80.2	10,565	5,500	4,790	302,430	11,436	0
11	2/2/2023	87.6	10,195	6,707	5,100	301,690	9,783	0
12	2/2/2023	63.4	7,299	6,625	5,265	304,990	12,073	0
13	2/3/2023	86	9,899	6,680	5,553	311,620	9,673	0
14	2/4/2023	96.6	10,496	6,380	5,637	313,600	9,564	0
15	2/5/2023	96.3	10,381	6,615	5,374	315,300	9,520	0
16	2/5/2023	72.6	8,316	6,550	5,666	308,900	10,962	0
17	2/6/2023	87.8	10,409	6,224	5,000	310,630	9,334	0
18	2/6/2023	85.3	10,483	6,800	5,174	314,210	9,589	0
19	2/7/2023	88.6	10,403	6,360	5,844	316,920	9,220	0
20	2/7/2023	87.8	10,236	6,660	5,365	312,230	9,383	0
21	2/8/2023	91.7	10,539	6,969	5,406	307,060	9,628	0
22	2/8/2023	89.1	10,357	6,370	5,426	307,820	8,703	0
23	2/8/2023	90.9	10,403	6,421	4,993	310,660	9,281	0
24	2/9/2023	91.6	10,514	6,750	5,315	309,020	8,938	0
25	2/9/2023	88	10,343	6,405	5,425	307,000	8,784	0
26	2/10/2023	84.2	10,333	6,990	5,395	312,200	9,234	0
27	2/10/2023	81.6	9,834	6,650	5,054	316,360	9,294	0
28	2/11/2023	94.2	10,544	6,670	5,245	310,740	8,693	0
29	2/11/2023	90.9	10,093	6,372	6,156	310,380	8,688	0
30	2/12/2023	87.7	10,067	6,902	5,406	306,980	8,981	0
31	2/12/2023	86.9	9,875	6,816	5,691	311,190	9,057	0
32	2/13/2023	92.1	10,235	6,569	5,517	311,030	9,189	0
33	2/13/2023	91.4	10,219	6,521	5,425	313,090	8,805	0
34	2/13/2023	69.7	8,075	5,834	5,724	314,440	10,664	0
35	2/14/2023	83.3	9,705	6,339	5,000	306,340	8,973	0
36	2/14/2023	94.3	10,399	5,720	5,381	313,900	8,666	0
37	2/14/2023	95.6	10,216	5,654	5,735	311,410	8,714	0
38	2/15/2023	95	9,888	6,375	5,852	318,490	9,512	0
39	2/15/2023	89.2	9,554	6,425	4,476	314,230	9,114	0
40	2/16/2023	82.6	8,833	6,280	5,534	312,090	9,063	0
41	2/17/2023	89.6	9,634	6,674	4,870	316,180	10,441	0
42	2/17/2023	87.6	9,406	6,851	5,880	315,940	9,179	0
43	2/17/2023	89.8	9,645	6,656	4,881	312,670	8,856	0
44	2/18/2023	91.2	9,303	5,687	4,923	310,380	9,008	0
45	2/18/2023	98.8	9,325	4,825	6,145	320,600	8,847	0
46	2/18/2023	90.9	9,036	6,211	4,718	312,600	8,801	0
47	2/19/2023	89.5	8,944	6,441	4,604	309,530	8,943	0
48	2/19/2023	99	9,672	6,333	5,660	309,600	8,871	0
49	2/19/2023	94	9,560	6,679	5,022	307,080	8,795	0
50	2/20/2023	97.5	9,534	6,058	4,735	306,350	8,847	0
51	2/20/2023	89	9,092	5,804	5,043	308,270	8,681	0
52	2/20/2023	89.9	9,141	5,667	4,591	313,520	8,859	0
53	2/21/2023	97.1	9,643	6,036	5,568	312,410	8,818	0

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VERNON JOHNSON WTZ 401H

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/other
54	2/21/2023	79.3	7,872	6,007	5,390	311,140	9,345	0
55	2/21/2023	93.9	9,413	6,518	4,811	307,570	8,752	0
56	2/22/2023	96.6	9,737	6,718	5,582	311,180	8,664	0
57	2/22/2023	99.3	9,632	6,178	6,221	308,590	8,543	0
58	2/22/2023	65.2	8,012	5,763	5,567	314,880	11,323	0
59	2/23/2023	83.1	8,642	5,627	6,024	308,070	10,069	0
60	2/24/2023	90.1	9,305	6,494	4,990	308,800	8,566	0
61	2/24/2023	96.9	9,621	6,335	4,886	314,760	8,572	0
62	2/24/2023	89.9	9,469	6,105	5,494	311,920	10,594	0
63	2/25/2023	92.2	9,486	6,911	5,370	312,220	8,625	0
64	2/26/2023	99.3	9,637	6,555	5,814	307,110	8,517	0
65	2/26/2023	91.5	9,304	7,232	5,458	309,690	8,673	0
66	2/27/2023	98.8	9,644	7,166	6,023	315,930	8,544	0
67	2/27/2023	90.5	9,405	6,133	5,409	319,180	8,588	0
68	2/28/2023	97.4	9,688	7,240	5,885	308,020	8,390	0
69	2/28/2023	94.3	9,521	8,112	6,161	311,940	7,824	0
70	3/1/2023	98.2	9,677	5,791	5,908	308,510	7,956	0
71	3/1/2023	88.9	9,159	7,532	6,423	307,240	7,900	0
72	3/1/2023	91.5	8,684	5,574	6,566	311,490	7,875	0
73	3/1/2023	92.6	9,187	6,900	5,700	301,820	7,648	0
74	3/2/2023	93.5	9,060	7,458	6,376	304,750	7,924	0
75	3/2/2023	98.4	8,901	7,062	6,619	313,180	7,605	0
76	3/4/2023	94.7	8,837	6,634	6,182	306,480	8,396	0
77	3/5/2023	98.6	9,389	7,250	6,000	312,610	7,380	0
78	3/6/2023	98.7	9,384	7,087	6,083	312,220	7,383	0
79	3/6/2023	98.9	9,658	6,740	6,416	307,670	7,429	0
80	3/6/2023	93.8	9,195	6,995	6,402	291,287	7,432	0
81	3/6/2023	96.9	9,391	7,104	6,073	314,310	7,436	0
82	3/6/2023	98.5	9,515	5,505	5,420	314,980	7,347	0
83	3/6/2023	98.6	9,433	6,670	5,600	310,100	7,319	0
84	3/7/2023	99.4	9,023	6,430	5,700	308,160	7,504	0
85	3/7/2023	98.2	9,012	6,748	5,650	305,884	7,473	0
86	3/7/2023	96.6	8,935	6,853	5,752	308,640	7,198	0
87	3/7/2023	99.2	9,106	6,400	5,125	320,400	7,377	0
88	3/7/2023	99.9	8,702	4,600	5,995	312,080	7,310	0
89	3/8/2023	98	9,482	6,508	5,206	311,340	6,920	0
90	3/8/2023	62.7	5,863	6,580	4,389	309,540	10,587	0
91	3/8/2023	98.3	8,473	6,436	5,406	312,250	7,269	0
92	3/8/2023	99.8	8,499	6,050	5,345	307,640	7,252	0
93	3/8/2023	99.9	7,957	4,550	5,695	312,970	7,184	0
94	3/9/2023	99.6	8,171	4,275	5,360	305,120	7,103	0
95	3/9/2023	93.5	8,294	6,222	4,525	313,720	7,186	0
96	3/10/2023	92.2	7,820	6,113	4,350	316,310	7,098	0
97	3/10/2023	99.5	6,964	6,295	5,730	308,290	7,190	0
98	3/10/2023	94	7,917	6,300	5,000	305,630	7,032	0
99	3/10/2023	93.2	8,133	6,770	5,320	304,860	7,005	0
100	3/10/2023	99.9	8,072	7,005	5,683	312,710	7,001	0
101	3/11/2023	99.5	8,336	4,900	5,074	312,840	7,149	0
102	3/11/2023	91.2	7,867	7,479	4,865	313,220	6,986	0

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**VERNON JOHNSON WTZ 401H**  
**ATTACHMENT 1**  
**PERF REPORT**

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG
Stage No	Perforation I	Perf From MD	Perf to MD	Number of Perforations
1	1/24/2023	29,914	29,820	36
2	1/29/2023	29,786	29,608	36
3	1/29/2023	29,575	29,397	36
4	1/30/2023	29,364	29,186	36
5	1/30/2023	29,153	28,976	36
6	1/30/2023	28,942	28,765	36
7	1/31/2023	28,731	28,554	36
8	1/31/2023	28,521	28,343	36
9	1/31/2023	28,310	28,132	36
10	2/1/2023	28,099	27,921	36
11	2/1/2023	27,888	27,710	36
12	2/2/2023	27,677	27,499	36
13	2/3/2023	27,466	27,288	36
14	2/3/2023	27,255	27,077	36
15	2/4/2023	27,044	26,866	36
16	2/5/2023	26,833	26,655	36
17	2/5/2023	26,622	26,445	36
18	2/6/2023	26,411	26,234	36
19	2/6/2023	26,201	26,023	36
20	2/7/2023	25,990	25,812	36
21	2/7/2023	25,779	25,601	36
22	2/8/2023	25,568	25,390	36
23	2/8/2023	25,357	25,179	36
24	2/9/2023	25,146	24,968	36
25	2/9/2023	24,935	24,757	36
26	2/9/2023	24,724	24,546	36
27	2/10/2023	24,513	24,335	36
28	2/10/2023	24,302	24,125	36
29	2/11/2023	24,091	23,914	36
30	2/11/2023	23,880	23,703	36
31	2/12/2023	23,670	23,492	36
32	2/12/2023	23,459	23,281	36
33	2/13/2023	23,248	23,070	36
34	2/13/2023	23,037	22,859	36
35	2/14/2023	22,826	22,648	36
36	2/14/2023	22,615	22,437	36
37	2/14/2023	22,404	22,226	36
38	2/15/2023	22,193	22,015	36
39	2/15/2023	21,982	21,805	36
40	2/15/2023	21,771	21,594	36
41	2/16/2023	21,560	21,383	36

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**VERNON JOHNSON WTZ 401H  
ATTACHMENT 1  
PERF REPORT**

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG
42	2/17/2023	21,350	21,172	36
43	2/17/2023	21,139	20,961	36
44	2/17/2023	20,928	20,750	36
45	2/18/2023	20,717	20,539	36
46	2/18/2023	20,506	20,328	36
47	2/18/2023	20,295	20,117	36
48	2/19/2023	20,084	19,906	36
49	2/19/2023	19,873	19,695	36
50	2/19/2023	19,662	19,485	36
51	2/20/2023	19,451	19,274	36
52	2/20/2023	19,240	19,063	36
53	2/20/2023	19,030	18,852	36
54	2/21/2023	18,819	18,641	36
55	2/21/2023	18,608	18,430	36
56	2/21/2023	18,397	18,219	36
57	2/22/2023	18,186	18,008	36
58	2/22/2023	17,975	17,797	36
59	2/23/2023	17,764	17,586	36
60	2/23/2023	17,553	17,375	36
61	2/24/2023	17,342	17,165	36
62	2/24/2023	17,131	16,954	36
63	2/25/2023	16,920	16,743	36
64	2/25/2023	16,710	16,532	36
65	2/26/2023	16,499	16,321	36
66	2/26/2023	16,288	16,110	36
67	2/27/2023	16,077	15,899	36
68	2/27/2023	15,866	15,688	36
69	2/28/2023	15,655	15,477	36
70	3/1/2023	15,444	15,266	36
71	3/1/2023	15,233	15,055	36
72	3/1/2023	15,022	14,844	36
73	3/1/2023	14,811	14,634	36
74	3/1/2023	14,600	14,423	36
75	3/2/2023	14,390	14,212	36
76	3/2/2023	14,179	14,001	36
77	3/4/2023	13,968	13,790	36
78	3/5/2023	13,757	13,579	36
79	3/6/2023	13,546	13,368	36
80	3/6/2023	13,335	13,157	36
81	3/6/2023	13,124	12,946	36
82	3/6/2023	12,913	12,735	36
83	3/6/2023	12,702	12,524	36

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Environmental Protection

12/08/2023 

**VERNON JOHNSON Wtz 401H  
ATTACHMENT 1  
PERF REPORT**

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG
84	3/6/2023	12,491	12,314	36
85	3/7/2023	12,280	12,103	36
86	3/7/2023	12,069	11,892	36
87	3/7/2023	11,859	11,681	36
88	3/7/2023	11,648	11,470	36
89	3/8/2023	11,437	11,259	36
90	3/8/2023	11,226	11,048	72
91	3/8/2023	11,015	10,837	36
92	3/8/2023	10,804	10,626	36
93	3/8/2023	10,593	10,415	36
94	3/9/2023	10,382	10,204	36
95	3/9/2023	10,171	9,994	36
96	3/9/2023	9,960	9,783	36
97	3/10/2023	9,749	9,572	36
98	3/10/2023	9,539	9,361	36
99	3/10/2023	9,328	9,150	36
100	3/10/2023	9,117	8,939	36
101	3/11/2023	8,906	8,728	36
102	3/11/2023	8,695	8,517	36

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Environmental Protection

12/08/2023





Latitude: 39°45'00" SURFACE HOLE 1,169'

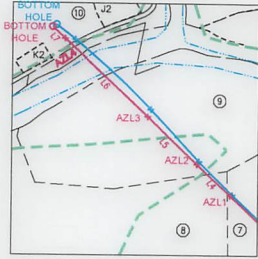
# JACKSON SURVEYING INC.

2413 EAST PIKE ST. # 112  
Clarksburg, WV 26302  
304-623-5851

Latitude: 39°47'30"

BOTTOM HOLE 3,888'

## DETAIL "A"

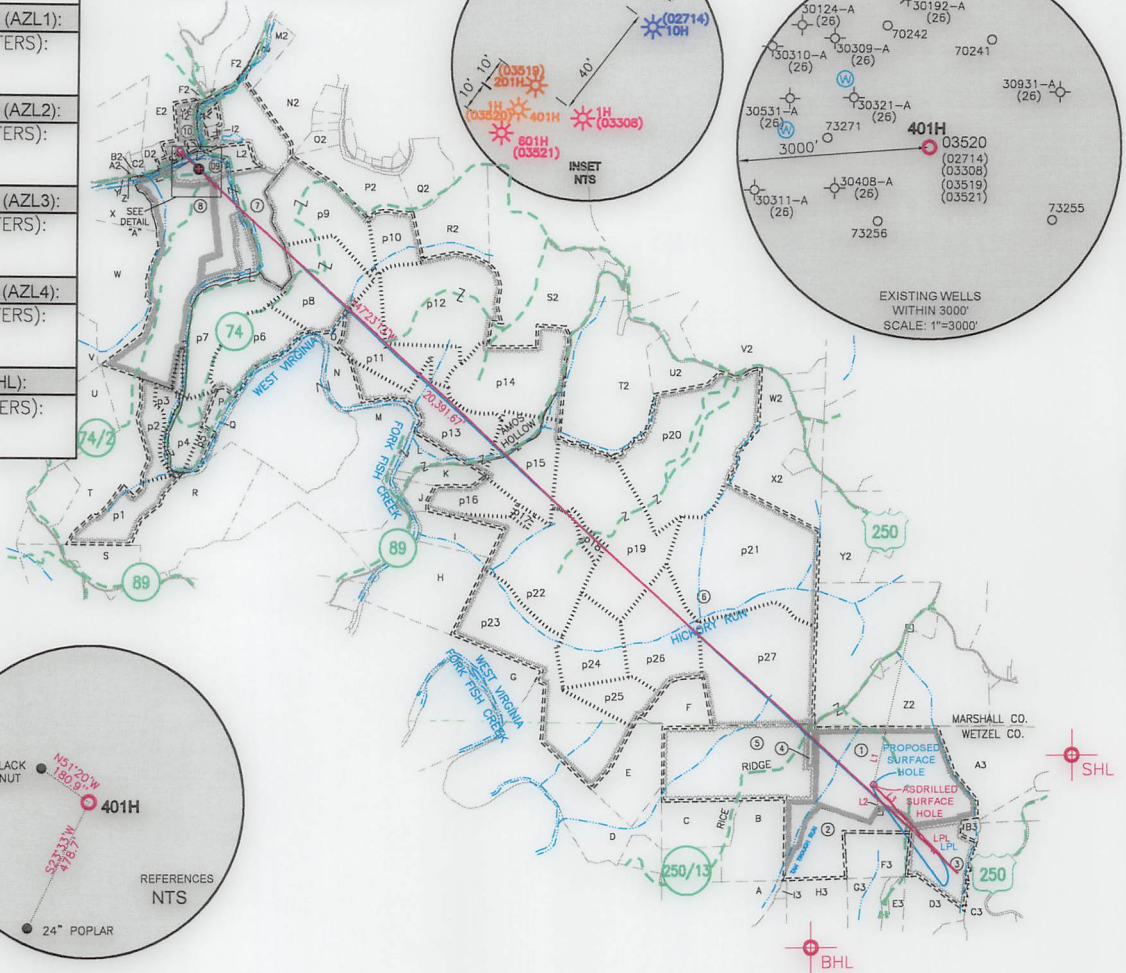


LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 12°48'46" E	3348.41'	SHL TO LANDMARK	30" POPLAR FOUND
L2	S 11°55'34" E	561.01'	SHL TO LANDMARK	LARGE POST FOUND
L5	N 46°40'28" W	283.83'	AZL2 TO AZL3	
L7	N 47°47'11" W	71.64'	AZL4 TO BHL	

LINE	BEARING	DISTANCE	CURVE LENGTH	DESCRIPTION
L3	S 42°18'59" E	1865.38'	3,226.34'	SHL TO LP
L4	N 47°11'55" W	189.86'	189.87'	AZL1 TO AZL2
L6	N 46°58'25" W	475.73'	475.74'	AZL3 TO AZL4

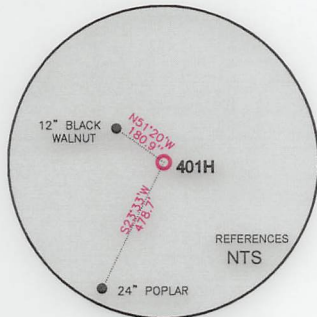
<b>SURFACE HOLE LOCATION (SHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,396,555.025 EASTING: 538,927.278
<b>LANDING POINT LOCATION (LPL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,396,134.602 EASTING: 539,310.053
<b>AZIMUTH POINT LOCATION-1 (AZL1):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,342.697 EASTING: 534,735.880
<b>AZIMUTH POINT LOCATION-2 (AZL2):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,382.016 EASTING: 534,693.421
<b>AZIMUTH POINT LOCATION-3 (AZL3):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,441.376 EASTING: 534,630.486
<b>AZIMUTH POINT LOCATION-4 (AZL4):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,540.318 EASTING: 534,524.482
<b>BOTTOM HOLE LOCATION (BHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,555.262 EASTING: 534,508.437



Longitude: 80°35'00"  
Longitude: 80°32'30"

BOTTOM HOLE 13,644'  
SURFACE HOLE 11,664'

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



### WELL RESTRICTIONS

- NO OCCUPIED DWELLINGS > 2500 SQ FT. WITHIN 625 FEET OF CENTER OF PAD.
- NO AGRICULTURE BUILDINGS > 2500 SQ FT. WITHIN 625 FEET OF CENTER OF PAD.
- NO WATER WELLS OR DEVELOPED SPRINGS ARE WITHIN 250 FEET OF PROPOSED WELL.
- NO PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
- NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.

### NOTES ON SURVEY

- 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.
- ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

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. 708

*David L Jackson*



COMPANY: **SWN** Production Company, LLC

VERNON JOHNSON WTZ		
OPERATOR'S WELL #:	401H	
API WELL #:	47	103 03520
	STATE	COUNTY PERMIT

(+) 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: GRADE GPS (NAVD 88, US FT)

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

WATERSHED: WEST VIRGINIA FORK FISH CREEK (HUC-10) ELEVATION: 1,431.6'

DISTRICT: CLAY COUNTY: WETZEL QUADRANGLE: LITTLETON, WV

SURFACE OWNER: VERNON S. JOHNSON ESTATE ACREAGE: ±132.00

OIL & GAS ROYALTY OWNER: AMP FUND III; LP: ALICE M. ABEREGG; ELLEN ABEREGG; JAMES J. ABEREGG; KEITH ABEREGG; BRIAN F. BUTLER; RED STONE RESOURCES, LLC; JAMES STONEKING ACREAGE: ±132.00

DRILL  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION

CONVERT  PLUG & ABANDON  CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY) MODIFICATION 12/08/2023

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 7,678' TMD 30,000' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: 1300 FORT PIERPONT ROAD SUITE 200 CITY: MORGANTOWN STATE: WV ZIP CODE: 26508

DESIGNATED AGENT: BRITTANY WOODY ADDRESS: 1300 FORT PIERPONT ROAD SUITE 200 CITY: MORGANTOWN STATE: WV ZIP CODE: 26508

<b>LEGEND:</b>	— SURVEYED BOUNDARY	<b>REVISIONS:</b>	DATE: 04-14-2023
○ PROPOSED SURFACE HOLE / BOTTOM HOLE	— DRILLING UNIT		
⊙ EXISTING / PRODUCING WELLHEAD	— LEASE BOUNDARY		
LPL* LANDING POINT LOCATION	— ASDRILLED PATH		DRAWN BY: N. MANO
⊙ EXISTING WATER WELL	— PROPOSED PATH		SCALE: 1" = 4000'
⊙ EXISTING SPRING	AZL* AZIMUTH POINT LOCATION		DRAWING NO:
			WELL LOCATION PLAT



**JACKSON SURVEYING  
INC.**



2413 EAST PIKE ST. # 112  
Clarksburg, WV 26302  
304-623-5851

<b>SURFACE HOLE LOCATION (SHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,396,555.081 EASTING: 538,927.379
<b>LANDING POINT LOCATION (LPL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,396,133.715 EASTING: 539,310.251
<b>AZIMUTH POINT LOCATION-1 (AZL1):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,343.350 EASTING: 534,739.199
<b>AZIMUTH POINT LOCATION-2 (AZL2):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,385.812 EASTING: 534,696.183
<b>AZIMUTH POINT LOCATION-3 (AZL3):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,450.966 EASTING: 534,634.595
<b>AZIMUTH POINT LOCATION-4 (AZL4):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,539.166 EASTING: 534,537.690
<b>BOTTOM HOLE LOCATION (BHL):</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,400,557.917 EASTING: 534,513.687

WELL BORE TRACTS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	JOHNSON VERNON S EST (S)/ AMP FUND III; LP; ALICE M. ABEREGG; ELLEN ABEREGG; JAMES J. ABEREGG; KEITH ABEREGG, BRIAN F. BUTLER; RED STONE RESOURCES, LLC; JAMES STONEKING (R)	3-1-1
TRACT	SURFACE OWNER (S)	TAX PARCEL
2	DRAHEIM HERBERT P ET AL (S)	3-1-6
3	MILLIKEN KEVIN R ETAL (S)	3-1-4
4	LONG LONNY DAVID & LINDA SUE (S)	1-3-2.1
5	JAMES J ABEREGG ET AL (S)	1-3-2
6	W VA WILDLIFE RESOURCES SECTION (S)	7-24-1
7	FROMHART BRAD ET UX - LIFE (S)	7-20-41
8	GRIBBEN M PEGGY REVOCABLE LIVING TRUST (S)	7-19-28
9	UNDERDONK ALAN (S)	7-16-25.1
10	CUMPSTON GAIL (S)	7-19-20

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	MCGUFFIE ARCH	1-6-5
B	WILLIAMS JOHN EDWARD	1-3-9
C	WILLIAMS LONNIE L	1-3-7
D	SEIDLER EARL DALE & NETTIE	1-2-6.1
E	WILLIAMS KATHERINE E TRUST	1-3-1
F	WADE MICHAEL CLAY & MCCLELLAND LAWRENCE W - TOD ET AL	7-24-6
G	VELLEKOOP PETER B ET UX - TOD	7-27-13
H	VELLEKOOP PETER B ET UX - TOD	7-27-11
I	VELLEKOOP PETER B ET UX - TOD	7-27-10.1
J	VELLEKOOP PETER B ET UX - TOD	7-26-6.2
K	VELLEKOOP PETER B ET UX - TOD	7-26-6.1
L	GEDEON DANIEL D ET UX	7-26-6
M	YOCUM JOSEPH LEE & MICHAEL D	7-26-9
N	CONSOLIDATED GAS SUPPLY CORP	7-26-8
O	BUZZARD COLIN R	7-26-3
P	HUNDRED RESOURCES INC	7-26-11
Q	BUTLER JOHN M & LISA A	7-26-11.1
R	HORNER DELORSE A	7-26-10
S	RIGGS JOHN E JR & DELANA	7-27-2
T	MORGAN JAMES E - LIFE	7-26-14
U	ROMACK VICTOR A	7-19-38
V	HORNER DELORSE A - LIFE	7-19-30
W	GRIBBEN M PEGGY REVOCABLE LIVING TRUST	7-19-29
X	ZELIC NICK ET UX	7-19-27
Y	HORNER DELORSE A - LIFE	7-19-26
Z	CHURCH OF CHRIST TRUSTEES	7-19-25
A2	COLLINS BRIAN & PAMELA J	7-19-24
B2	COLLINS BRIAN & PAMELA J	7-19-23.1
C2	COLLINS BRIAN & PAMELA J	7-19-23.2
D2	DRUSCHEL JAMES F & JAMIE ANN ET AL	7-19-23
E2	CUMPSTON GEORGE R ET AL	7-16-24
F2	BUTLER JOHN MATTHEW	7-16-39
G2	BURGE JUDITH A & VIRGINIA L BAILEY	7-20-4
H2	CONNELLY CHAS E	7-20-5
I2	MARLING SUELLEN	7-20-3
J2	SHARPENBERG DALTON & DEREK (S)	7-19-21
K2	VUCELICK CHARLES EST	7-19-22
L2	FROMHART BRAD ET UX - LIFE	7-20-01
M2	BURGE JUDITH A & VIRGINIA L BAILEY ET AL	7-16-40
N2	BURGE JUDITH A & VIRGINIA L BAILEY ET AL	7-20-6
O2	GEHO ANNIE L EST	7-20-11
P2	BURLEY AMMON ET UX	7-20-12
Q2	BURLEY AMMON	7-20-18
R2	BURLEY AMMON A	7-20-24
S2	BURLEY AMON A	7-20-37
T2	GRESHAW JASON M & MARY L	7-25-2
U2	BROWN ANDREW C III	7-25-6
V2	HARRINGTON CLYDE F	7-25-7
W2	W VA DEPT OF COMMERCE DIV OF NATURAL RESOURCES	7-25-9
X2	CONAWAY THOMAS EARL JR & CAROLYN K STOWE	7-25-12
Y2	CONAWAY THOMAS E	7-23-1
Z2	PRENDERGAST MICHAEL J & SUELLEN LEMLEY	7-23-26
A3	PRENDERGAST MICHAEL J & SUE ELLEN	3-1-2
B3	WV MINERALS INC	3-1-3
C3	MCDIFFITT WILBERT(WEBB)H TRUST	3-1-35
D3	MILLIKEN KEVIN R ETAL	3-1-13
E3	MILLIKEN KEVIN R ETAL	3-1-12
F3	DRAHEIM HERBERT P ETAL	3-1-5
G3	DRAHEIM GARY WAYNE JR ETAL	3-1-10
H3	DRAHEIM GARY WAYNE JR ETAL	3-1-9
I3	CBC HOLDINGS LLC	3-1-8.1

12/08/2023

REVISIONS:	COMPANY:	 		
	OPERATOR'S	VERNON JOHNSON WTZ	API #:	DATE: 04-14-2023
	WELL #:	401H	047-103-03520	DRAWN BY: N. MANO
	DISTRICT:	COUNTY:	STATE:	SCALE: N/A
	CLAY	WETZEL	WV	DRAWING NO:
				WELL LOCATION PLAT 2