

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

API 47051025060000 County MARSHALL District SAND HILL
Quad MOUNDSVILLE, WV Pad Name BETTY SCHAFER-MSH-PAD1 Field/Pool Name PANHANDLE FIELD WET
Farm Name ROY A. SCHAFER JR. & EDWARD J. SCHAFER Well Number BETTY SCHAFER MSH 5H
Operator (as registered with the OOG) SWN Production Company LLC
Address PO Box 12359 City Spring State TX
Zip 77391-2359

As Drilled Location NAD83/UTM Attach an as-drilled plat, profile view, and deviation survey

Landing Point of Curve
Top Hole Northing 4426810.138 Easting 531112.416
Northing 4426952.464 Easting 531331.775
Bottom Hole Northing 4431236.355 Easting 529379.445

Elevation (ft) 848.7' GL Type of Well Existing New Type of Report Interim Final
Permit Type Deviate Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrill Re-Work Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other
Type of Completion Single Multiple Fluids Produce 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
See attached Mud Summary Report

Date permit issued 2023-10-13 Date drilling commenced 2024-03-12 Date drilling ceased 2024-03-25
Date Completion activities began 2024-04-26 Date Completion activities ceased 2024-05-31
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 280' Oprn mine(s) (Y/N) depths N
Salt water depth(s) ft 802' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 355' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N



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API 47051025060000

Farm name ROY A. SCHAFFER JR. & EDWARD J. SCHAFFER

Well number BETTY SCHAFFER MSH 5H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Wt lb/ft	Grade	Basket Depth	Did cement circulate (Y/N) *Provide details below*
Conductor	20.000	20.000	136	NEW	94.00	J-55		Y
Surface	17.500	13.375	393	NEW	54.50	J-55	N/A	Y/ 24 BBLS
Coal	SEE SFC CSG							
Intermediate 1	12.250	9.625	1725	NEW	36.00	J-55		Y/ 26 BBLS
Intermediate 2								
Intermediate 3								
Production	8.500	5.500	22018	NEW	20.00	P-110		Y/ 25 BBLS
Tubing		2.875	6433	NEW	6.50	P-110		
Packer type and depth set								

Comment Detai _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ²)	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	GROUT TO SURFACE				SURFACE	24
Surface	CLASS A	560	15.6	1.19	666.4	SURFACE	8
Coal							
Intermediate 1		614	15.6	1.18	724.52	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	4240	14.5	1.29	5469.6	SURFACE	24
Tubing							

Drillers TD (ft) 22018 _____ Loggers TD (ft) 22018 _____

Deepest formation penetrated MARCELLUS _____ Plug back to (ft) 21932 _____

Plug back procedure N/A _____

Kick off depth (5390' MD) _____

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

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING: _____

SURFACE: 5 CENTRALIZERS - EVERY THIRD JOINT OF CASING

INTERMEDIATE: 22 CENTRALIZERS - EVERY THIRD JOINT OF CASING

PRODUCTION: 455 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 AS OPEN HOLE Yes No Details _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED _____

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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	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
SEE ATTACHMENT 2								

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Please insert additional pages as applicable.

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BETTY SCHAFER MSH 5H
ATTACHMENT 1
PERF REPORT

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG	Column1
1	4/23/2024	21,932	21,841	36	Marcellus Shale
2	4/27/2024	21,805	21,628	36	Marcellus Shale
3	4/27/2024	21,594	21,417	36	Marcellus Shale
4	4/28/2024	21,384	21,206	36	Marcellus Shale
5	4/28/2024	21,173	20,996	36	Marcellus Shale
6	4/28/2024	20,963	20,785	36	Marcellus Shale
7	4/29/2024	20,752	20,575	36	Marcellus Shale
8	4/29/2024	20,542	20,364	36	Marcellus Shale
9	4/29/2024	20,331	20,154	36	Marcellus Shale
10	4/29/2024	20,121	19,943	36	Marcellus Shale
11	4/30/2024	19,910	19,732	36	Marcellus Shale
12	4/30/2024	19,699	19,522	36	Marcellus Shale
13	4/30/2024	19,489	19,311	36	Marcellus Shale
14	5/1/2024	19,278	19,101	36	Marcellus Shale
15	5/1/2024	19,068	18,890	36	Marcellus Shale
16	5/1/2024	18,857	18,680	36	Marcellus Shale
17	5/1/2024	18,647	18,469	36	Marcellus Shale
18	5/2/2024	18,436	18,259	36	Marcellus Shale
19	5/2/2024	18,225	18,048	36	Marcellus Shale
20	5/2/2024	18,015	17,837	36	Marcellus Shale
21	5/2/2024	17,804	17,627	36	Marcellus Shale
22	5/2/2024	17,594	17,416	36	Marcellus Shale
23	5/3/2024	17,383	17,206	36	Marcellus Shale
24	5/3/2024	17,173	16,995	36	Marcellus Shale
25	5/3/2024	16,962	16,785	36	Marcellus Shale
26	5/3/2024	16,752	16,574	36	Marcellus Shale
27	5/4/2024	16,541	16,363	36	Marcellus Shale
28	5/4/2024	16,330	16,153	36	Marcellus Shale
29	5/4/2024	16,120	15,942	36	Marcellus Shale
30	5/4/2024	15,909	15,732	36	Marcellus Shale
31	5/4/2024	15,699	15,521	36	Marcellus Shale
32	5/5/2024	15,488	15,311	36	Marcellus Shale
33	5/5/2024	15,278	15,100	36	Marcellus Shale
34	5/5/2024	15,067	14,890	36	Marcellus Shale
35	5/6/2024	14,856	14,679	36	Marcellus Shale
36	5/6/2024	14,646	14,468	36	Marcellus Shale
37	5/6/2024	14,435	14,258	36	Marcellus Shale
38	5/6/2024	14,225	14,047	36	Marcellus Shale
39	5/7/2024	14,014	13,837	36	Marcellus Shale
40	5/7/2024	13,804	13,626	36	Marcellus Shale
41	5/7/2024	13,593	13,416	36	Marcellus Shale
42	5/8/2024	13,383	13,205	36	Marcellus Shale

10/18/2024

**BETTY SCHAFFER MSH 5H
ATTACHMENT 1
PERF REPORT**

STAGE NUM	Perf Date	Perf Bottom MD	Perf Top MD2	# SHOTS PER STG	Column1
43	5/8/2024	13,172	12,995	36	Marcellus Shale
44	5/8/2024	12,961	12,784	36	Marcellus Shale
45	5/9/2024	12,751	12,573	36	Marcellus Shale
46	5/9/2024	12,540	12,363	36	Marcellus Shale
47	5/9/2024	12,330	12,152	36	Marcellus Shale
48	5/10/2024	12,119	11,942	36	Marcellus Shale
49	5/10/2024	11,909	11,731	36	Marcellus Shale
50	5/10/2024	11,698	11,521	36	Marcellus Shale
51	5/11/2024	11,487	11,310	36	Marcellus Shale
52	5/11/2024	11,277	11,099	36	Marcellus Shale
53	5/11/2024	11,066	10,889	36	Marcellus Shale
54	5/12/2024	10,856	10,678	36	Marcellus Shale
55	5/12/2024	10,645	10,468	36	Marcellus Shale
56	5/12/2024	10,435	10,257	36	Marcellus Shale
57	5/12/2024	10,224	10,047	36	Marcellus Shale
58	5/13/2024	10,014	9,836	36	Marcellus Shale
59	5/13/2024	9,803	9,626	36	Marcellus Shale
60	5/13/2024	9,592	9,415	36	Marcellus Shale
61	5/14/2024	9,382	9,204	36	Marcellus Shale
62	5/14/2024	9,171	8,994	36	Marcellus Shale
63	5/14/2024	8,961	8,783	36	Marcellus Shale
64	5/15/2024	8,750	8,573	36	Marcellus Shale
65	5/15/2024	8,540	8,362	36	Marcellus Shale
66	5/15/2024	8,329	8,152	36	Marcellus Shale
67	5/16/2024	8,118	7,941	36	Marcellus Shale
68	5/16/2024	7,908	7,730	36	Marcellus Shale
69	5/17/2024	7,697	7,520	36	Marcellus Shale
70	5/17/2024	7,487	7,309	36	Marcellus Shale
71	5/17/2024	7,276	7,099	36	Marcellus Shale
72	5/17/2024	7,066	6,888	36	Marcellus Shale
73	5/18/2024	6,855	6,678	36	Marcellus Shale
74	5/18/2024	6,645	6,467	36	Marcellus Shale

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BETTY SCHAFFER MSH 5H

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/other
1	4/26/2024	90.6	8,289	6,258	3,559	192,520	5,862	0
2	4/27/2024	91.7	8,113	5,045	4,598	368,200	9,342	0
3	4/27/2024	91.7	8,104	4,125	4,015	365,700	8,928	0
4	4/28/2024	88.7	8,152	4,549	4,798	368,540	8,725	0
5	4/28/2024	84	8,134	4,747	4,235	368,260	8,689	0
6	4/28/2024	75.9	7,443	6,267	3,997	367,800	8,589	0
7	4/29/2024	82.3	8,743	4,999	4,211	368,180	8,460	0
8	4/29/2024	87.6	8,753	5,812	4,598	366,620	8,377	0
9	4/29/2024	88.1	8,735	4,471	4,217	367,200	8,303	0
10	4/30/2024	91.7	8,867	4,667	4,600	369,280	8,294	0
11	4/30/2024	95.1	8,862	4,625	4,898	364,960	8,287	0
12	4/30/2024	95.7	9,373	4,346	4,698	368,960	8,390	0
13	4/30/2024	93.4	9,173	4,598	4,417	367,660	8,171	0
14	5/1/2024	92.3	9,161	4,401	3,960	365,840	8,113	0
15	5/1/2024	93.5	8,762	4,921	4,689	368,300	7,942	0
16	5/1/2024	90.1	8,637	6,652	4,598	368,120	7,957	0
17	5/1/2024	90.9	8,811	4,667	4,223	367,180	7,805	0
18	5/2/2024	91.6	8,696	4,862	4,614	365,980	7,828	0
19	5/2/2024	93.7	8,911	4,976	4,963	368,880	7,955	0
20	5/2/2024	92.6	8,956	5,098	4,898	369,120	7,824	0
21	5/2/2024	90.5	8,748	6,725	3,812	368,080	7,794	0
22	5/3/2024	95	9,063	4,994	4,211	364,720	7,769	0
23	5/3/2024	95.1	8,863	6,321	5,120	363,340	7,980	0
24	5/3/2024	95.6	8,814	5,557	5,400	369,900	7,980	0
25	5/3/2024	93.6	8,695	6,453	4,624	367,680	8,008	0
26	5/3/2024	95.1	8,819	5,827	4,233	365,180	7,837	0
27	5/4/2024	96.2	8,472	4,472	3,419	369,400	7,999	0
28	5/4/2024	91.1	8,354	5,957	4,453	369,960	7,879	0
29	5/4/2024	95.2	8,628	5,180	4,364	367,040	8,041	0
30	5/4/2024	93.6	8,258	5,862	4,212	366,900	7,985	0
31	5/4/2024	90.7	8,300	6,427	5,247	369,400	7,818	0
32	5/5/2024	94.4	8,859	6,204	4,456	365,440	7,879	0
33	5/5/2024	90.2	8,455	4,855	4,321	366,860	8,879	0
34	5/5/2024	83.5	7,196	4,816	3,984	366,320	7,645	0
35	5/6/2024	79.6	7,401	5,899	4,609	370,660	7,822	0
36	5/6/2024	82.9	6,976	5,372	4,625	370,440	8,043	0
37	5/6/2024	86.4	7,344	4,710	4,489	362,400	7,837	0
38	5/7/2024	80.6	6,625	4,141	4,393	364,040	7,743	0
39	5/7/2024	89.2	7,892	5,865	4,298	368,140	7,849	0
40	5/7/2024	95.7	8,089	4,324	3,994	368,260	7,772	0
41	5/8/2024	96.9	7,991	5,885	4,532	368,180	7,529	0
42	5/8/2024	87.2	7,278	6,136	4,852	370,680	7,921	0
43	5/8/2024	96	7,691	3,327	4,963	368,280	7,987	0
44	5/9/2024	95.5	7,691	6,014	5,397	369,540	7,934	0
45	5/9/2024	96.1	7,358	6,027	5,683	369,040	7,800	0
46	5/9/2024	96	8,168	5,136	4,692	368,400	7,888	0
47	5/10/2024	97.3	7,783	5,963	5,163	367,780	7,800	0
48	5/10/2024	91.1	7,544	4,525	5,140	369,440	7,823	0
49	5/10/2024	96	7,741	4,256	5,179	368,060	7,821	0
50	5/11/2024	95	7,264	4,158	4,763	369,360	7,743	0
51	5/11/2024	94.5	7,908	4,915	4,734	369,120	7,572	0
52	5/11/2024	94	7,443	5,111	5,317	366,880	7,770	0
53	5/11/2024	92.9	7,153	4,336	5,294	367,500	7,664	0

**BETTY SCHAFFER MSH 5H
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	5/12/2024	90.4	7,125	6,194	5,053	368,960	7,682	0
55	5/12/2024	91.3	7,206	6,396	5,189	369,580	7,486	0
56	5/12/2024	96	7,835	3,105	4,931	369,020	7,593	0
57	5/13/2024	96	7,695	6,691	5,414	367,780	7,716	0
58	5/13/2024	92.4	7,252	5,518	4,931	368,700	7,559	0
59	5/13/2024	97.2	7,643	4,749	5,324	367,740	7,521	0
60	5/14/2024	91	6,999	5,074	5,294	369,900	7,560	0
61	5/14/2024	92.4	6,796	5,614	5,163	369,440	7,540	0
62	5/14/2024	96	7,073	4,766	5,430	367,660	7,644	0
63	5/14/2024	96	6,887	5,118	5,411	365,340	7,668	0
64	5/15/2024	80.7	6,060	4,811	4,975	367,520	7,570	0
65	5/15/2024	97	6,933	6,758	5,164	366,700	7,405	0
66	5/16/2024	96	6,908	4,166	5,521	370,000	7,591	0
67	5/16/2024	97.8	6,886	4,870	4,243	368,320	7,519	0
68	5/16/2024	92	6,599	4,681	4,951	369,760	7,524	0
69	5/17/2024	96	7,248	6,028	5,381	366,900	7,545	0
70	5/17/2024	91	6,769	5,569	5,145	365,220	7,424	0
71	5/17/2024	97	7,121	4,882	5,123	367,980	7,520	0
72	5/18/2024	97	6,609	4,002	5,158	367,360	7,340	0
73	5/18/2024	97.8	6,859	4,316	5,250	368,600	7,399	0
74	5/18/2024	93	6,415	4,820	5,286	386,300	7,775	0

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API 47051025060000 Farm name ROY A. SCHAFER JR. & EDWARD J. SCHAFER Well number BETTY SCHAFER MSH 5H

PRODUCING FORMATION(S)	DEPTHS	
<u>MARCELLUS</u>	<u>5,970'</u> TVD	<u>6,291'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2662 psi Bottom Hole _____ psi DURATION OF TEST (hrs) _____

OPEN FLOW GAS _____ OIL _____ NGL _____ WATER _____ GAS MEASURED BY
mcpd bpd bpd bpd Estimate Orifice Pilot

LITHOLOGY/ TOP BOTTOM TOP DEPTH BOTTOM DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID
FORMATION DEPTH IN FT DEPTH IN FT IN FT DEPTH IN FT (FRESH WATER, BRINE, OIL, GAS, H2S, ETC)
NAME TVD TVD MD MD

LITHOLOGY/FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESH WATER, BRINE, OIL, GAS, H2S, ETC)
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 BAKER HUGHES
Address 9110 GROGANS MILL RD City IE WOODLANI State TX Zip 77380

Cementing Company SCHLUMBERGER
Address 110 SCHLUMBERGER DRIVE City SUGAR LANE State TX Zip 77478

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

Please insert additional pages as applicable.

Completed by Denise Grantham Telephone 832.796.6139
Signature Denise Grantham / CAP Title Regulatory Specialist Date 7/12/2024

Submittal of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry
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Well Name: BETTY SCHAFER MSH 5H

47051025060000

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	280.00	280.00	
Top of Salt Water	802.00	802.00	NA	NA	
Pittsburgh Coal	355.00	355.00	364.00	364.00	
Pottsville (ss)	462.00	462.00	595.00	595.00	
Raven Cliff (ss)	813.00	813.00	1161.00	1161.00	
Big Injun (ss)	1510.00	1509.00	1609.00	1606.00	
Berea (siltstone)	1897.00	1888.00	1929.00	1919.00	
Rhinstreet (shale)	5475.00	5375.00	5788.00	5668.00	
Cashaqua (shale)	5788.00	5668.00	5866.00	5734.00	
Middlesex (shale)	5866.00	5734.00	5969.00	5812.00	
Burket (shale)	5969.00	5812.00	6005.00	5837.00	
Tully (ls)	6005.00	5837.00	6056.00	5868.00	
Mahantango (shale)	6056.00	5868.00	6291.00	5970.00	
Marcellus (shale)	6291.00	5970.00	NA	NA	GAS

Hydraulic Fracturing Fluid Product Component Information Disclosure



Job Start Date:	04/26/2024
Job End Date:	05/18/2024
State:	West Virginia
County:	Marshall
API Number:	47-051-02506-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	BETTY SCHAFFER MSH 5H
Latitude:	39.990891
Longitude:	-80.63556
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6000
Total Base Water Volume (gal)*:	24391186
Total Base Non Water Volume:	85723

Water Source	Percent
Surface Water, < 1000TDS	81.90%
Produced Water	18.10%

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					
Excelerate LX-15	SWN Well Services	Friction Reducer					
FE-1A	SWN Well Services	Iron Control					
HAI-501	SWN Well Services	Corrosion Inhibitor					
HCL	SWN Well Services	Solvent					
MC MX 2-2822	SWN Well Services	Scale Inhibitor					
Sand	SWN Well Services	Proppant					
Tolicide 4Frac	SWN Well	Biocide					

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Services							
Items above are Trade Names. Items below are the individual ingredients.							
			Water	7732-18-5	100.00000	88.19794	
			Crystalline silica, quartz	14808-60-7	100.00000	11.69658	
			Complex Amine Compound	proprietary	50.00000	0.03706	
			Hydrochloric acid	7647-01-0	15.00000	0.03624	
			Hydrotreated light petroleum distillate	64742-47-8	25.00000	0.01853	
			Tetrakis (hydroxymethyl) phosphonium sulfate	55566-30-8	45.00000	0.00465	
			Surfactant	proprietary	5.00000	0.00371	
			Acetic anhydride	108-24-7	65.00000	0.00080	
			Quaternary Ammonium Compounds	68424-85-1	8.00000	0.00078	
			Ethoxylated alcohols	proprietary	5.00000	0.00076	
			Methanol	67-56-1	60.00000	0.00075	
			Alkoxyated polyhydric alcohol	proprietary	1.00000	0.00074	
			Polyethylenepoly-ethoxylated phosphonomethylated sodiumsalts	70900-16-2	20.00000	0.00052	
			Acetic acid	64-19-7	35.00000	0.00043	
			Ethanol	64-17-5	3.00000	0.00026	
			Sodium chloride	7647-14-5	5.00000	0.00013	
			Modified thiourea polymer	proprietary	30.00000	0.00012	
			Propargyl alcohol	107-19-7	5.00000	0.00002	

* 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%

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)

RECEIVED
Office of Oil and Gas
JUL 16 2024
WV Department of
Environmental Protection

10/18/2024

**State of West Virginia
Department of Environmental Protection
Office of Oil and Gas**

Well Operator's Report of
Initial Gas-Oil Ratio

Well Operator SWN PRODUCTION COMPANY LLC Designated Agent _____
Address PO BOX 12359 Address _____
SPRING, TX 77391-2359 _____

Geological Target Formation: MARCELLUS Depth 5,970' TVD / 6,291' MD feet
Perforation Interval 6,467' / 21,932' feet

Guidelines for testing:

1. A minimum of gas vented or flared.
2. A 24 hour pre-flow into pipelines or tanks.
3. Uniform producing rate during the 24 hour test per test period.
4. Measurement standards as for Form WR-39, "Report of Annual Production" (see 35CSR4-15)
5. Separate Form WR-36 for each producing formation in a multiple completion.

TEST DATA

Start of Test Date 6/29/2024	Time 9:00 AM	End of Test Date 6/30/2024	Time 9:00 AM	Duration of Test 24 Hours
Tubing Pressure 1232 psi	Casing Pressure 2040 psi	Separator Pressure 323 psi	Separator Temperature 97	
Oil Production During Test 1471	Gas Production During Test 13830	Water Production During Test 1093	105,000 PPM Chlorides -Salinity	
Oil Gravity 60	Producing Method (flowing, pumping, gas lift etc.) Free Flowing Up Tubing			

GAS PRODUCTION

Measurement Method Flange Tap <input checked="" type="checkbox"/> Pipe Tap <input type="checkbox"/> L-10 <input type="checkbox"/>		Positive Choke <input checked="" type="checkbox"/>
		Positive flow prover <input type="checkbox"/>
Orifice diameter 3"	Pipe Diameter (inside) 3"	Nominal Choke Size inches 128/64
Differential Pressure range 375-415 psi	Max. Static pressure range 341 psi	Prover and Orifice diameter - inches 3"
Differential 385 psi	Static 323 psi	
Gas Gravity (Air = 1.0) Measured 0.75	Flowing Temperature 97	Gas Temperature 97
24 Hour Coefficient 1	24 Hour coefficient pressure PSIA 14.65	

TEST RESULTS

Daily Oil 1471	Daily Water 1093	Daily Gas 13830	Gas-Oil Ratio 9.4
--------------------------	----------------------------	---------------------------	-----------------------------

RECEIVED
Office of Oil and Gas
JUL 16 2024
WV Department of
Environmental Protection

Carol A. Pruitt

Well Operator
BY CAROL A. PRUITT
ITS: DESIGNATED REPRESENTATIVE

10/18/2024

Latitude: 40°00'00"

SURFACE HOLE 2959'

BOTTOM HOLE 8585'

JACKSON SURVEYING INC.

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

Latitude: 40°02'30"

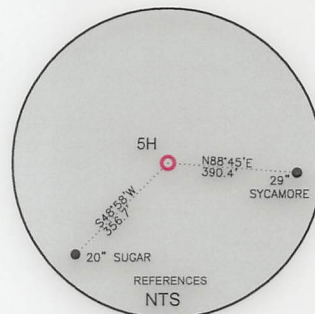
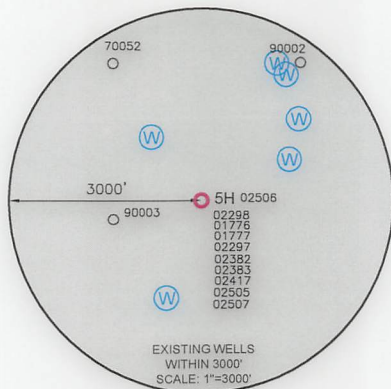
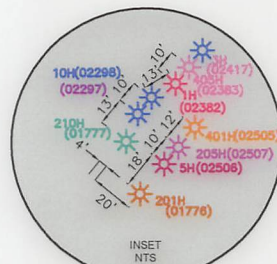
Longitude: 80°37'30"

Table with 2 columns: Location Type (SHL, LPL, AZL1, AZL2, BHL) and UTM Coordinates (NORTHING, EASTING).

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



Table with 5 columns: LINE, BEARING, DISTANCE, DESCRIPTION, MONUMENT. Contains data for lines L1, L2, L3, and L4.



WELL RESTRICTIONS

- List of 6 well restrictions including distance requirements from dwellings, buildings, water wells, streams, and public water supply.

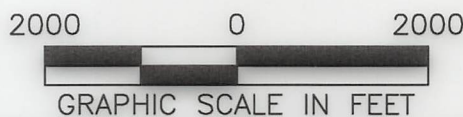
NOTES ON SURVEY

- Notes on survey including boundary information, parcel maps, and grid north reference.

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

Signature of David L. Jackson



COMPANY: SWN Production Company, LLC

State of West Virginia logo and WVDEP Office of Oil & Gas address: 601 57th Street, Charleston, WV 25034.

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

BETTY SCHAFER MSH
OPERATOR'S WELL #: 5H
API WELL #: 47 STATE 051 COUNTY 02506 PERMIT

Form with well type (Production checked), watershed (Wheeling Creek), district (Sand Hill), county (Marshall), surface owner (Roy A. Schaffer Jr. & Edward J. Schaffer), and other well details.

Form with well operator (SWN Production Company, LLC), designated agent (Brittany Woody), and address (1300 Fort Pierpont Road, Suite 200, Morgantown, WV 26508).

Table with 2 columns: LEGEND (Proposed Surface Hole, Existing Wellhead, Landing Point Location, Existing Water Well, Existing Spring, Surveyed Boundary, Drilling Unit, Lease Boundary, Asdrilled Path, Proposed Path) and REVISIONS/DATE.

**JACKSON SURVEYING
INC.**

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



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

2000 0 2000



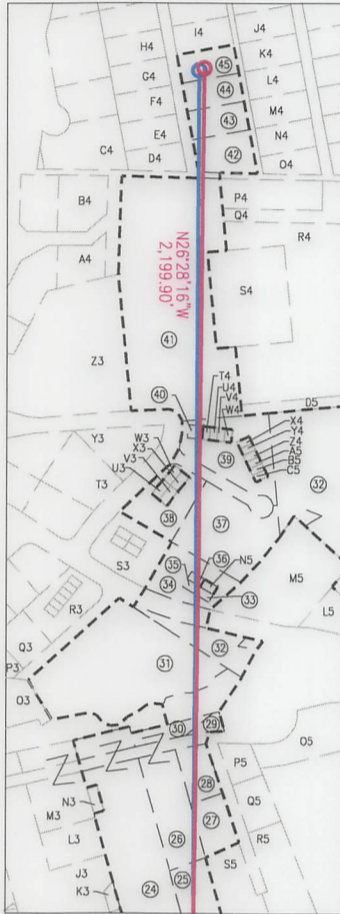
GRAPHIC SCALE IN FEET

10/18/2024

REVISIONS:	COMPANY:				
	OPERATOR'S			DATE: 05-06-2024	
	WELL #:			DRAWN BY: N. MANO	
	DISTRICT:			SCALE: 1" = 2000'	
	COUNTY:			DRAWING NO:	
	STATE:			WELL LOCATION PLAT 2	
	API #				
	WV				

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

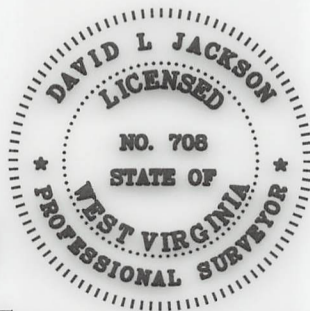
DETAIL "A"



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



10/18/2024



REVISIONS:	COMPANY:			
	OPERATOR'S		BETTY SCHAFER MSH	API #
	WELL #:		5H	47-051-02506
	DISTRICT:	COUNTY:	STATE:	DATE:
	SAND HILL	MARSHALL	WV	05-06-2024
				DRAWN BY: N. MANO
				SCALE: N/A
				DRAWING NO:
				WELL LOCATION PLAT 3

**JACKSON SURVEYING
INC.**

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

WELL BORE TRACTS		
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	SCHAFFER ROY A JR & SCHAFFER EDWARD J (S/R)	12-9-22
TRACT		
2	GRAY JOHN ALVIN (S)	13-3-14
3	GRAY JARED (S)	13-3-14.7
4	LANGMYER RAYMOND (S)	12-9-4
5	MANNERS NATALIE M (S)	12-9-5.6
6	MANNERS-THIELE NADENE R & CHARLES L THIELE (S)	12-9-5.4
7	TEACOACH JAY M ET UX (S)	12-9-5.3
8	THIELE CHARLES L & NADENE R MANNERS-THIELE (S)	12-9-2.2
9	STRONG GREGORY S & LOUISE M (S)	12-9-2
10	THIELE CHARLES L & NADENE R MANNERS-THIELE (S)	12-9-2.3
11	MAAS BRIAN J & AMY C - TRUST (S)	13-3-8
12	MAAS BRIAN J & AMY C - TRUST (S)	13-3-10
13	WHARTON PETER R ET AL (S)	12-1-34
14	ESTEP DOUGLAS J & LINDA R - TOD (S)	12-1-33.1
15	SLIGAR JOHN WALTER (S)	12-1-39
16	MERCER DARICK B & RENEE A (S)	12-1-32
17	COFFIELD MICHAEL L & TYLENE R (S)	12-1-10
18	SLIGAR KAREN SCHENK (S)	12-1-5
19	HAMILTON MARY SCHENK & GARY P (S)	12-1-5.1
20	HAMILTON MARY SCHENK & GARY P (S)	12-1-5.4
21	ENGINEERED FOUNDATION SOLUTIONS, PLLS	12-1A-94
22	ROMAGNOLI JUDY E (S)	12-1A-23
23	ROMAGNOLI JUDY E (S)	12-1A-25
24	MILLER ROBERT A JR (S)	16-1-28
25	WESTFALL JAMES E JR (S)	16-1-29.1
26	O'HARA MARY R & EDWARD J (S)	16-1-29
27	KANDIS ADRIANNA & SHANE (S)	16-1-32
28	KANDIS ADRIANNA & SHANE (S)	16-1-30
29	WV DEPT OF TRANSPORTATION DIV OF HIGHWAYS (S)	16-1-35.1
30	WV DEPT OF TRANSPORTATION DIV OF HIGHWAYS (S)	16-1-29.2
31	TJG PROPERTIES LLC (S)	13-2-16
32	BOARD OF EDUCATION (S)	10-W96-40.2
33	TJG PROPERTIES LLC (S)	10-W99-4.4
34	TJG PROPERTIES LLC (S)	10-W99-4
35	TJG PROPERTIES LLC (S)	10-W99-4.1
36	TJG PROPERTIES LLC (S)	10-W99-4.2
37	TJG PROPERTIES LLC (S)	10-W99-3
38	TJG PROPERTIES LLC & SOLACE PROPERTIES LLC (S)	10-W99-6
39	STEVICK DENISE A (S)	10-W99-7
40	DEPTO MARY V (S)	10-W99-7.1
41	CARDINAL HEALTH 110 LLC (S)	10-W96-39.1
42	KEY ANTHONY JR & BARBARA A (S)	10-W96-32
43	GALARDI RICHARD A (S)	10-W96-27
44	STAN MICHAEL T & DEE (S)	10-W96-22
45	HICKMAN WILLIAM J & THERESA M (S)	10-W96-18

10/18/2024

REVISIONS:	COMPANY:						
							
	OPERATOR'S	BETTY SCHAFFER MSH	API #		DATE: 05-06-2024		
	WELL #:	5H	47-051-02506		DRAWN BY: N. MANO		
DISTRICT:	SAND HILL	COUNTY:	MARSHALL	STATE:	WV	SCALE:	N/A
						DRAWING NO:	
						WELL LOCATION PLAT 4	



**JACKSON SURVEYING
INC.**

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

ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A	SCHAFFER ROY A JR & SCHAFFER EDWARD J	12-9-23
B	SCHAFFER ROY A JR & SCHAFFER EDWARD J	12-9-22.1
C	OHIO COUNTY COAL RESOURCES INC	12-9-22.2
D	FISH PATRICIA A & FREDERICK W	12-10-1.2
E	ROMAN JEWELL L	12-10-1
F	HOGG THOMAS G & DONN W ET AL	13-8-3
G	HOGG THOMAS G & DONN W ET AL	13-8-4
H	SCHAFFER ROY A JR & EDWARD J	12-9-24
I	HART JOHN J & RENEE A	13-8-2.1
J	HART JOHN J & RENEE A	13-3-11
K	LANGMYER SCOTT R & MELANEY F	12-9-3
L	LANGMYER RAYMOND J	12-9-3.1
M	GRAY JOHN ALVIN	13-3-13
N	LANGMYER SCOTT R & MELANEY F	12-9-2.1
O	MAAS BRIAN J & AMY C - TRUST	13-3-9
P	MAAS BRIAN J & AMY C - TRUST	13-3-10
Q	BONACCI BRIAN F	13-3-5.1
R	MCADAMS ROBERT E & JODY L	12-1B-27.1
S	MATTUCCI MARK A	12-1B-28
T	MATTUCCI MARK A	12-1B-28.2
U	MATTUCCI MARK A	12-1B-28.1
V	MATTUCCI MARK A	12-1B-29
W	MALARSKI PETE E ET UX	12-1B-34
X	MALARSKI PETE E ET UX	12-1B-35
Y	MALARSKI PETE E ET UX	12-1B-36
Z	STEGMAN CATHERINE A - TOD	12-1B-37
A2	STEGMAN CATHERINE A - TOD	12-1B-37.1
B2	STEGMAN CATHERINE A - TOD	12-1B-38
C2	WHARTON PETER R ET AL	12-1-34.1
D2	WHARTON PETER R ET AL	12-1-35
E2	PATEL SHYAMSUNDAR K	12-1-33
F2	PATEL SHYAMSUNDAR K	12-1-36
G2	GRIFFITH THOMAS A	12-1-37
H2	ESTEP DOUGLAS J & LINDA R - TOD	12-1-38
I2	SLIGAR NOEL W & CHRISTA M	12-1-39.2
J2	MCCULLEY JOSEPH DANIEL ET UX	12-1-39.1
K2	ROMAN EUGENE H	12-1-40.1
L2	EARNEST ALLEN DOUGLAS	12-1-40
M2	HENRY LORI MYLES	12-1-41
N2	MARPLE JEFFREY J & BARBARA J	12-1-32.1
O2	HIGGINS CONSTANCE L - LIFE	12-1-7.3
P2	RUNKLE SHERRY L	12-1-7.2
Q2	SUGAR KAREN SCHENK & TERRY B	12-1-5.2
R2	REARDON SHELLY S	12-1-5.6
S2	WETMORE BROOKE L & BRIAN B	12-1-5.5
T2	SLIGER KAREN SCHENK & TERRY B	12-1-6
U2	SLIGAR KAREN SCHENK & TERRY B	12-1-5.3
V2	SIMMS JOYCE A GEER ET AL	12-1-7.4
W2	SCHAFFER EDWARD J & BRENDA M	12-1-7.1
X2	HAND WILLIAM L & CARNEY-HAND CHARMARINE J	12-1B-1
Y2	SCHAFFER EDWARD J ET UX	12-1B-3
Z2	MOSA BRADLEY J & LEDBETER BEVERLY	12-1B-4.1
A3	HUGHES HEIDI SCHENK	13-3-5.2
B3	WHITE HORSE FARM LLC	13-3-6
C3	WHITE HORSE FARM LLC	13-3-2
D3	COVENANT COMMUNITY CHURCH TRS	13-2-22
E3	MCCORMICK MARY RITA	16-2-7
F3	STACEY VILLAGE LTD PARTNERSHIP	16-2-1.1
G3	FARHATT MARY JAYNE	16-1-63
H3	UNKNOWN	12-1A-24
I3	WHEELING MAR-WIN CHURCH OF NAZARENE TRUSTEES	16-1-26
J3	MERRITT DOUGLAS W & REBECCA A	16-1-65
K3	MILLER ROBERT A JR	16-1-65.1
L3	MERRITT DOUGLAS W REBECCA A	16-1-27.1
M3	MERRITT REBECCA A & ROBERT A MILLER JR	16-1-27
N3	MERRITT REBECCA A & ROBERT A MILLER JR	16-1-28.1
O3	PERONI CONSTRUCTION INC	13-2-17
P3	T J G PROPERTIES LLC	16-2CC-4
Q3	STILLION CHRISTOPHER E & HEATHER W	16-2CC-3
R3	GLEN HOLLIN CONDOMINIUM ASSOC INC	16-2CC-48
S3	TJG PROPERTIES LLC	10-W99-5
T3	GUMP DENNIS JAMES	10-W99-12
U3	TJG PROPERTIES LLC	10-W99-6.1
V3	SOLACE PROPERTIES LLC	10-W99-6.4
W3	TJG PROPERTIES LLC	10-W99-6.2
X3	TJG PROPERTIES LLC	10-W99-6.3
Y3	TJG PROPERTIES LLC	10-W99-8
Z3	PERONI CONSTRUCTION INC	10-W96-39.2

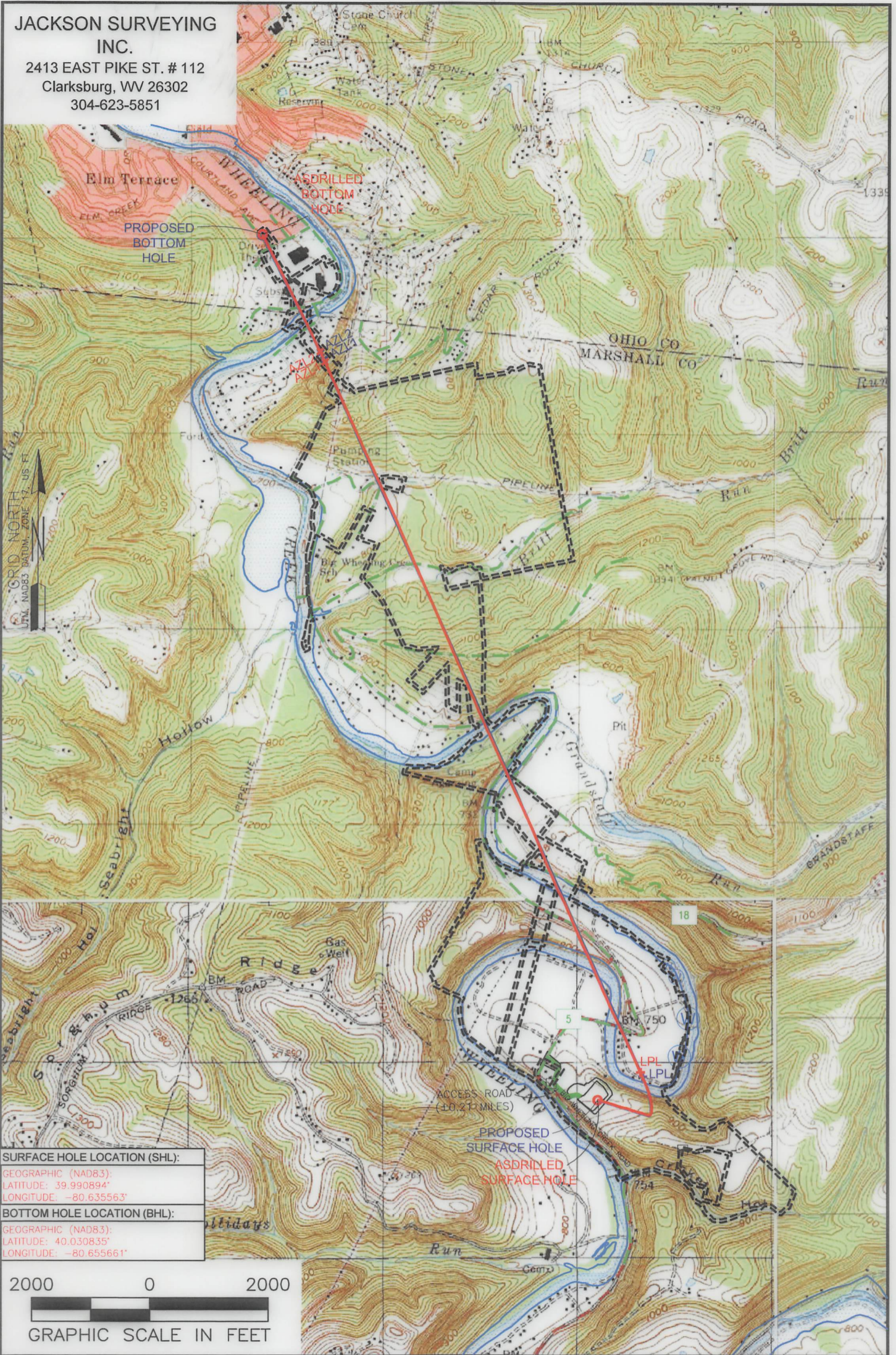
ADJOINING OWNERS TABLE		
TRACT	SURFACE OWNER	TAX PARCEL
A4	WOJCIK STEPHEN E III & CRISTI	10-W96-41
B4	PEKLINSKY CAROLENE B	10-W96-42
C4	DEI TODD D & STACIE L	10-W95-209
D4	MUSSER R M & P (SELLER);MUSSEY N M & A L (BUYER)	10-W96-31
E4	HUNTER MARILYN DARLENE	10-W96-26
F4	WHORTON ROBERT D & PAMELA J	10-W95-105
G4	HICKMAN TAMMY L	10-W95-104
H4	BECKER DAVID A & MARY R	10-W95-103
I4	NORMAN JAMES S & SONDRRA K	10-W96-14
J4	WISE KIMBERLY J & JEFFREY C	10-W96-15
K4	CRAWFORD FAMILY TRUST	10-W96-19
L4	MARTIN GARY B & E A	10-W96-23
M4	CHARLEY SHANE & ELIZABETH	10-W96-28
N4	SLEIME THOMAS A & D C	10-W96-33
O4	HETZEL LYNN E	10-W96-36
P4	DANAHEY MARY MARGARET (LE) DANAHEY U L; LEECH D	10-W96-39.3
Q4	CARDINAL HEALTH 110 LLC	10-W96-39.4
R4	CARDINAL HEALTH 110 LLC	10-W96-39
S4	CARDINAL HEALTH 110 LLC	10-W96-39.6
T4	REDDY ELEANOR JEAN - TOD	10-W99-7.2
U4	RAUSCHER KENNETH L	10-W99-7.3
V4	FOSTER MARGARET	10-W99-7.4
W4	GRIFFIN BETTY LOU	10-W99-7.5
X4	PRINCE AARON MARK	10-W99-7.6
Y4	MCGRAIL EILEEN E	10-W99-7.7
Z4	DEPTO MARY V	10-W99-7.8
A5	GARRITANO ADRIANO & DANIELLE R	10-W99-7.9
B5	MURRAY MARION E	10-W99-7.10
C5	SYMONS JOHN H	10-W99-7.11
D5	CARDINAL HEALTH 110 LLC	10-W96-39.5
E5	ROBRECHT RICHARD M & SUSAN L	10-W96-43
F5	SILO INC C/O ROBINSON RICHARD	6-T17B-324
G5	SILO INC C/O ROBINSON RICHARD	6-T17-7
H5	MAXWELL SHIRLEY L	6-T17B-17
I5	MAXWELL SHIRLEY L & C L JR	6-T17B-18
J5	FLATLEY R KEVIN	16-1-38
K5	FLATLEY R KEVIN	16-1-37
L5	WHEELING POWER CO WHEELING ELECTRIC CO	10-W99-2
M5	WHEELING POWER COMPANY WHEELING ELECTRIC CO	10-W99-1
N5	TJG PROPERTIES LLC	10-W99-4.3
O5	ATLAS REAL ESTATE	16-1-35.2
P5	KUNTZ CLESTA - TOD	16-1-31
Q5	HAYES MARK K & RHONDA J	16-1-33
R5	BURKE JAMES & ANDREA	16-1-67
S5	WESTFALL JAMES E JR & VICKIE	16-1-66
T5	ROMAGNOLI JUDY E - TOD	12-1A-27
U5	ROMAGNOLI JUDY E	12-1A-26
V5	ROMAGNOLI JUDY E	12-1A-22
W5	FRANK WILLIAM EMMETT ET UX	12-1A-19.1
X5	WARNICK RONALD & ESTHER	12-1A-19
Y5	BLUST HAROLD F	12-1A-18.2
Z5	BLUST HAROLD F	12-1A-87
A6	SNYDER JOHN J ET UX	12-1A-85
B6	SNYDER JOHN J ET UX	12-1A-84
C6	ZDONCZYK ROBIN G	12-1A-83.1
D6	SNYDER LONNIE A	12-1A-83
E6	HARTMAN WALTER L ET UX	12-1-10.1
F6	COFFIELD MICHAEL & TYLENE	12-1-47
G6	BARTOLOVICH STEPHEN M	12-1-11
H6	LEASURE ANNA	12-1-30
I6	KUNTZ JOHN H	12-1-31
J6	CONSOLIDATION COAL COMPANY/ MURRAY ENERGY C/O LAND DEPT	12-1-10.2
K6	ADASE GEORGE & LAURIE	12-1-29
L6	SAVAGE CHARLES JACKSON	12-1-29.1
M6	ADASE GEORGE & LAURIE	12-1-28
N6	HADSELL SANDRA L	12-1-20
O6	MERINAR JUSTIN K	12-1-21
P6	DYE ALBERT M - LIFE	12-9-6
Q6	DYE WILLIAM R	12-9-1
R6	MANNERS DANIEL J ET UX	12-9-5
S6	ANDERSON MICHAEL	12-9-5.5
T6	STEADMAN FRANKLIN L ET UX	12-9-5.1
U6	PROVANCE FRANK J & ELIZABETH & BARRY F	13-3-14.5
V6	SHEPHERD TIMOTHY & DEBORAH L	13-3-14.4
W6	GRAY JOHN ALVIN	12-9-21
X6	JESTERS COURT 13 INC	13-3-14.3
Y6	JESTERS COURT 13 INC	13-3-14.2
Z6	JESTERS COURT 13 INC	13-3-14.1
A7	FISHER CHARLES B & CARLA S	12-9-20
B7	MERINAR CALVIN C - LIFE	12-9-19

10/18/2024

REVISIONS:	COMPANY:	 	
	OPERATOR'S	BETTY SCHAFFER MSH	API #
	WELL #:	5H	47-051-02506
	DISTRICT:	SAND HILL	COUNTY:
		STATE:	WV
		DATE:	05-06-2024
		DRAWN BY:	N. MANO
		SCALE:	N/A
		DRAWING NO:	
		WELL LOCATION	PLAT 5

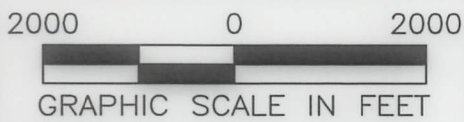
**JACKSON SURVEYING
INC.**

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



SURFACE HOLE LOCATION (SHL):
GEOGRAPHIC (NAD83):
LATITUDE: 39.990894°
LONGITUDE: -80.635563°

BOTTOM HOLE LOCATION (BHL):
GEOGRAPHIC (NAD83):
LATITUDE: 40.030835°
LONGITUDE: -80.655661°



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:

- PROPOSED SURFACE HOLE / BOTTOM HOLE
- ⊙ EXISTING / PRODUCING WELLHEAD
- ✱ LPL
- ⬭ FLOOD PLAN
- PUBLIC ROAD
- ACCESS ROAD TO PREV. SITE
- = LEASE BOUNDARY
- PROPOSED PATH
- ASDRILLED PATH

10/18/2024

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	WELL (FARM) NAME: BETTY SCHAFER MSH	WELL # 5H	SERIAL #
ADDRESS: 1300 FORT PIERPONT ROAD, SUITE 200 MORGANTOWN, WV 26508	COUNTY - CODE MARSHALL - 051	DISTRICT; SAND HILL	
SURFACE OWNER: ROY A. SCHAFER JR. & EDWARD J. SCHAFER	USGS 7 1/2 QUADRANGLE MAP NAME MOUNDSVILLE, WV	API # 47-051-02506	