

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

API 47-009-00270 County BROOKE District BUFFALO
Quad BETHANY Pad Name SAMUEL JONESBRK PAD1 Field/Pool Name PANHANDLE FIELD WET
Farm name SAMUEL E. & JUDITH F. JONES Well Number SAMUEL JONES BRK 206H
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 4448990.39 Easting 537359.15
Landing Point of Curve Northing 4448717.19 Easting 536980.60
Bottom Hole Northing 4444313.11 Easting 538782.36

Elevation (ft) 1,204' 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 01/08/19 Date drilling commenced 06/03/2019 Date drilling ceased 06/16/2019
Date completion activities began 08/17/2019 Date completion activities ceased 10/17/2019
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 264' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 612' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 397' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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Reviewed by: C. BLO
5-11-20
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API 47- 009 - 00270 Farm name SAMUEL E. & JUDITH F. JONES Well number SAMUEL JONES BRK 206H

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	373'	NEW	J-55/54.50#		Y, 19 BBLS
Coal	SEE INTERMEDIATE						
Intermediate 1	12.25	9.625	1,841'	NEW	J-55/36#		Y, 48 BBLS
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	22,337'	NEW	P-110/20#		Y, 5 BBLS
Tubing		2.875	6,625'	NEW	P-110/6.50#		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	375	15.60	1.20	450	SURFACE	8
Coal	SEE INTERMEDIATE						
Intermediate 1	CLASS A	745	15.60	1.19	886.55	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	4,205	15.60	1.20	5,046	SURFACE	24
Tubing							

Drillers TD (ft) 22,337' Loggers TD (ft) 22,337'
 Deepest formation penetrated Marcellus Shale Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5,644'

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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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/17/2019
Job End Date:	9/18/2019
State:	West Virginia
County:	Brooke
API Number:	47-009-00270-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Samuel Jones BRK 206
Latitude:	40.19047159
Longitude:	-80.56111158
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,248
Total Base Water Volume (gal):	24,359,600
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
SWN FRW-13LA	SWN Well Services	Friction Reducer		Listed Below			RECEIVED Office of Oil and Gas
BIOC11219A	Nalco	Biocide		Listed Below			DEC 30 2019 WV Department of Environmental Protection



Econo-C1200	SWN Well Services	Corrosion Inhibitor		Listed Below					
HCL	SWN Well Services	Solvent		Listed Below					
SCAL 16486A	Nalco	Scale Inhibitor		Listed Below					
Base Water	Operator	Base Fluid		Listed Below					
Ecopol-FEAC	SWN Well Services	Iron Control		Listed Below					
Sand	SWN Well Services	Proppant		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	86.42230	Density = 8.345		
			Crystalline Silica, quartz	14808-60-7	100.00000	12.83467			
			Water	7732-18-5	85.00000	0.59063			
			Hydrochloric Acid	7647-01-0	15.00000	0.09111			
			Petroleum Disillates, Hydrotreated	64742-47-8	25.00000	0.02514			
			Methanol	67-56-1	60.00000	0.01455			
			Benzyl-(C12-C16 Alky)-Dimethyl-Ammonium	68424-85-1	30.00000	0.00727			
			Chloride Glutaraldehyde	111-30-8	10.00000	0.00242			

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	Ammonium Chloride	12125-02-9	2.00000	0.00201	
	Ethylene glycol	107-21-1	30.00000	0.00200	
	Amine Triphosphate	Proprietary	30.00000	0.00200	
	Alcohols, C12-1, ethoxylated	68551-12-2	1.50000	0.00151	
	Oleic Acid	93-83-4	1.50000	0.00151	
	Diethanolamide				
	Acetic Acid	64-19-7	37.50000	0.00121	
	Methanol	67-56-1	80.00000	0.00074	
	Citric Acid	77-92-9	22.50000	0.00073	
	Oxyalkylated fatty acid	68951-67-7	9.67400	0.00009	
	Fatty acids	61790-12-3	5.02700	0.00005	
	Modified thiourea polymer	68527-49-1	4.74600	0.00004	
	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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PERF REPORT

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	8/17/2019	22,249	22,154	36
2	8/17/2019	22,121	22,013	42
3	8/17/2019	21,980	21,872	42
4	8/25/2019	21,839	21,731	42
5	8/25/2019	21,698	21,591	42
6	8/26/2019	21,551	21,450	42
7	8/26/2019	21,416	21,309	42
8	8/26/2019	21,275	21,168	42
9	8/27/2019	21,135	21,027	42
10	8/27/2019	20,994	20,886	42
11	8/27/2019	20,855	20,745	42
12	8/27/2019	20,712	20,609	42
13	8/27/2019	20,571	20,463	42
14	8/27/2019	20,430	20,324	42
15	8/28/2019	20,289	20,181	42
16	8/28/2019	20,148	20,040	42
17	8/28/2019	20,007	19,900	42
18	8/28/2019	19,866	19,759	42
19	8/29/2019	19,725	19,621	42
20	8/29/2019	19,584	19,477	42
21	8/30/2019	19,444	19,336	42
22	8/30/2019	19,303	19,195	42
23	8/30/2019	19,166	19,054	42
24	8/30/2019	19,021	18,914	42
25	8/30/2019	18,881	18,772	42
26	8/30/2019	18,739	18,631	42
27	9/1/2019	18,598	18,490	42
28	9/1/2019	18,457	18,349	42
29	9/1/2019	18,316	18,208	42
30	9/1/2019	18,175	18,068	42
31	9/2/2019	18,034	17,927	42
32	9/2/2019	17,895	17,786	42
33	9/2/2019	17,752	17,645	42
34	9/2/2019	17,612	17,504	42
35	9/3/2019	17,469	17,363	42
36	9/3/2019	17,330	17,222	42
37	9/3/2019	17,184	17,081	42
38	9/3/2019	17,048	16,943	42
39	9/4/2019	16,907	16,799	42
40	9/4/2019	16,766	16,658	42
41	9/4/2019	16,625	16,517	42
42	9/4/2019	16,484	16,377	42
43	9/4/2019	16,343	16,238	42

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44	9/4/2019	16,202	16,095	42
45	9/5/2019	16,061	15,954	42
46	9/5/2019	15,921	15,813	42
47	9/5/2019	15,780	15,672	42
48	9/5/2019	15,639	15,531	42
49	9/5/2019	15,498	15,390	42
50	9/5/2019	15,352	15,249	42
51	9/6/2019	15,216	15,105	42
52	9/6/2019	15,075	14,967	42
53	9/6/2019	14,934	14,826	42
54	9/6/2019	14,793	14,685	42
55	9/6/2019	14,652	14,545	42
56	9/6/2019	14,511	14,404	42
57	9/7/2019	14,370	14,263	42
58	9/7/2019	14,229	14,122	42
59	9/7/2019	14,089	13,981	42
60	9/7/2019	13,948	13,840	42
61	9/7/2019	13,807	13,699	42
62	9/9/2019	13,666	13,558	42
63	9/9/2019	13,525	13,417	42
64	9/9/2019	13,384	13,276	42
65	9/10/2019	13,243	13,135	42
66	9/10/2019	13,102	12,994	42
67	9/10/2019	12,961	12,854	42
68	9/10/2019	12,820	12,713	42
69	9/10/2019	12,679	12,572	42
70	9/10/2019	12,534	12,431	42
71	9/10/2019	12,398	12,287	42
72	9/11/2019	12,257	12,149	42
73	9/11/2019	12,116	12,005	42
74	9/11/2019	11,976	11,867	42
75	9/11/2019	11,834	11,731	42
76	9/11/2019	11,693	11,585	42
77	9/11/2019	11,552	11,444	42
78	9/12/2019	11,411	11,303	42
79	9/12/2019	11,333	11,162	42
80	9/12/2019	11,129	11,022	42
81	9/12/2019	10,988	10,881	42
82	9/12/2019	10,847	10,740	42
83	9/12/2019	10,706	10,599	42
84	9/12/2019	10,566	10,458	42
85	9/13/2019	10,421	10,317	42
86	9/13/2019	10,284	10,176	42

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87	9/13/2019	10,143	10,035	42
88	9/13/2019	10,002	9,891	42
89	9/13/2019	9,862	9,753	42
90	9/13/2019	9,720	9,615	42
91	9/13/2019	9,579	9,471	42
92	9/13/2019	9,438	9,331	42
93	9/14/2019	9,297	9,190	42
94	9/14/2019	9,156	9,049	42
95	9/14/2019	9,018	8,908	42
96	9/14/2019	8,875	8,767	42
97	9/15/2019	8,734	8,626	42
98	9/16/2019	8,593	8,485	42
99	9/16/2019	8,452	8,344	42
100	9/16/2019	8,311	8,203	42
101	9/16/2019	8,168	8,062	42
102	9/17/2019	8,029	7,921	42
103	9/16/2019	7,888	7,782	42
104	9/17/2019	7,747	7,639	42
105	9/18/2019	7,606	7,504	42
106	9/18/2019	7,465	7,358	42
107	9/18/2019	7,324	7,217	42
108	9/18/2019	7,183	7,076	42
109	9/18/2019	7,043	6,935	42
110	9/18/2019	6,902	6,794	42
111	9/18/2019	6,759	6,653	42
112	9/18/2019	6,620	6,510	42

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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	8/17/2019	74	7,626	5,026	4,128	251,250	5,011	0
2	8/17/2019	77	8,092	5,012	3,715	273,070	6,759	0
3	8/25/2019	85	8,262	6,855	4,849	281,942	6,810	0
4	8/25/2019	76	8,005	5,590	4,183	282,298	6,779	0
5	8/25/2019	70	8,250	4,306	5,176	268,260	6,735	0
6	8/26/2019	68	8,110	5,705	4,580	281,480	7,585	0
7	8/26/2019	79	8,078	5,573	4,832	282,118	6,700	0
8	8/26/2019	67	8,343	6,225	4,836	280,877	5,663	0
9	8/27/2019	71	8,270	6,575	4,905	280,160	5,775	0
10	8/27/2019	71	7,921	6,334	4,339	280,129	6,740	0
11	8/27/2019	69	8,076	5,892	4,365	276,891	6,515	0
12	8/27/2019	66	8,245	6,360	5,304	244,542	6,094	0
13	8/27/2019	81	8,257	6,219	5,304	279,126	5,518	0
14	8/28/2019	70	8,293	6,194	4,650	279,823	7,096	0
15	8/28/2019	74	7,902	6,423	4,438	281,332	6,051	0
16	8/28/2019	72	7,897	6,760	4,180	281,332	6,349	0
17	8/28/2019	79	8,005	5,695	5,072	280,962	6,387	0
18	8/28/2019	72	8,240	6,148	4,776	279,702	5,583	0
19	8/29/2019	70	8,392	5,742	4,407	248,897	4,967	0
20	8/29/2019	88	8,682	6,153	4,102	280,286	5,541	0
21	8/30/2019	90	8,480	6,057	5,228	279,671	5,213	0
22	8/30/2019	86	7,955	5,765	4,202	279,053	6,232	0
23	8/30/2019	81	7,870	5,100	4,248	279,043	5,448	0
24	8/30/2019	87	8,283	5,580	4,917	284,338	5,338	0
25	8/30/2019	85	8,279	6,051	4,827	281,843	4,846	0
26	8/30/2019	89	8,124	4,951	5,692	281,476	5,180	0
27	9/1/2019	88	8,360	5,320	4,608	280,448	5,570	0
28	9/1/2019	77	7,572	5,808	4,179	283,192	5,637	0
29	9/1/2019	88	8,108	5,628	5,628	281,064	5,389	0
30	9/2/2019	92	7,753	5,913	4,817	280,925	5,492	0
31	9/2/2019	86	7,759	5,680	4,415	281,355	5,341	0
32	9/2/2019	86	7,824	5,709	4,415	283,720	5,293	0
33	9/2/2019	83	7,948	5,520	4,347	281,432	5,281	0
34	9/2/2019	81	7,661	5,950	4,994	281,904	5,469	0
35	9/3/2019	89	8,236	6,533	4,826	280,308	5,363	0
36	9/3/2019	83	8,165	6,420	4,112	281,176	5,219	0
37	9/3/2019	93	8,170	5,783	5,671	280,381	4,987	0
38	9/3/2019	94	8,160	6,025	4,951	281,824	5,106	0
39	9/4/2019	88	8,179	6,421	5,101	280,648	4,937	0
40	9/4/2019	88	8,194	7,014	4,616	279,543	5,422	0
41	9/4/2019	85	8,367	6,428	4,826	280,052	5,603	0
42	9/4/2019	87	8,056	6,256	4,523	279,682	5,180	0
43	9/4/2019	94	8,211	5,803	4,460	280,130	5,161	0
44	9/5/2019	88	8,324	6,319	4,340	281,925	5,139	0
45	9/5/2019	89	8,000	5,911	4,646	281,305	5,344	0
46	9/5/2019	85	8,069	6,559	4,651	249,170	4,965	0
47	9/5/2019	81	8,124	6,524	2,015	272,310	4,976	0
48	9/5/2019	90	8,124	5,838	4,852	276,370	5,051	0
49	9/5/2019	92	8,365	6,503	4,590	281,650	5,613	0
50	9/6/2019	91	8,427	6,023	4,630	283,190	5,236	0
51	9/6/2019	97	8,321	6,179	4,469	284,090	5,295	0
52	9/6/2019	90	8,081	6,251	4,721	285,550	5,014	0
53	9/6/2019	92	8,254	5,520	5,097	274,910	4,828	0

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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	9/6/2019	89	8,342	5,840	5,188	281,820	4,930	0
55	9/6/2019	93	8,210	5,763	4,419	274,920	5,004	0
56	9/6/2019	96	8,125	6,327	4,675	284,400	5,017	0
57	9/7/2019	99	8,047	5,900	4,553	286,520	5,041	0
58	9/7/2019	95	8,013	6,335	5,184	282,660	4,892	0
59	9/7/2019	89	8,144	6,049	4,685	283,900	4,967	0
60	9/7/2019	92	8,206	6,319	5,158	271,840	4,640	0
61	9/7/2019	29	5,563	6,057	4,657	113,190	7,303	0
62	9/9/2019	91	7,839	6,107	4,293	270,660	4,703	0
63	9/9/2019	100	7,924	6,192	4,427	282,630	4,792	0
64	9/9/2019	97	7,871	6,163	4,592	274,250	5,002	0
65	9/10/2019	93	7,727	5,978	4,380	281,910	4,625	0
66	9/10/2019	95	7,863	6,172	4,605	270,020	4,619	0
67	9/10/2019	95	7,921	6,771	4,965	270,850	4,649	0
68	9/10/2019	95	7,757	6,304	4,689	280,360	5,103	0
69	9/10/2019	96	7,645	5,710	4,916	285,960	4,727	0
70	9/10/2019	91	7,869	5,881	4,468	273,840	4,654	0
71	9/10/2019	91	7,821	5,672	4,327	282,145	4,537	0
72	9/11/2019	90	8,123	6,008	4,569	273,455	4,571	0
73	9/11/2019	96	7,712	5,875	4,456	284,320	4,630	0
74	9/11/2019	95	7,717	5,944	4,651	270,960	4,571	0
75	9/11/2019	96	7,702	6,238	4,726	271,110	4,629	0
76	9/11/2019	90	7,601	6,007	4,436	272,840	4,765	0
77	9/11/2019	92	7,688	6,211	4,568	282,025	4,572	0
78	9/12/2019	91	7,681	5,987	4,419	283,025	4,522	0
79	9/12/2019	94	7,624	6,380	4,780	281,950	4,813	0
80	9/12/2019	94	7,635	6,148	4,550	282,890	4,652	0
81	9/12/2019	94	7,436	5,957	4,582	270,180	4,414	0
82	9/12/2019	93	7,510	6,061	4,878	285,060	4,570	0
83	9/12/2019	91	7,464	6,019	4,476	283,150	4,519	0
84	9/12/2019	98	7,316	6,132	4,354	284,275	4,679	0
85	9/13/2019	95	7,135	6,063	4,329	284,475	4,563	0
86	9/13/2019	97	7,252	6,003	4,689	280,610	4,571	0
87	9/13/2019	94	7,365	6,047	4,650	282,910	4,447	0
88	9/13/2019	94	7,329	6,077	4,851	281,180	4,443	0
89	9/13/2019	94	7,180	5,732	4,654	282,350	4,505	0
90	9/13/2019	94	7,294	5,824	4,421	273,010	4,337	0
91	9/13/2019	96	7,181	6,485	4,352	282,450	4,756	0
92	9/13/2019	99	7,136	6,068	4,453	282,950	4,982	0
93	9/14/2019	91	6,901	5,684	4,395	283,390	5,503	0
94	9/14/2019	94	7,090	5,896	4,969	281,720	4,447	0
95	9/14/2019	96	6,902	5,808	4,469	271,530	4,409	0
96	9/14/2019	93	7,371	5,759	4,751	277,342	7,676	0
97	9/15/2019	97	7,167	5,684	4,364	276,232	4,695	0
98	9/16/2019	95	7,021	5,972	4,234	282,395	4,677	0
99	9/16/2019	94	9,670	5,545	4,771	283,455	4,802	0
100	9/16/2019	96	6,982	5,340	4,641	270,030	4,762	0
101	9/16/2019	100	7,024	5,784	4,760	267,204	4,798	0
102	9/16/2019	96	6,732	5,332	4,654	275,116	4,720	0
103	9/17/2019	95	7,024	5,360	4,651	274,172	4,775	0
104	9/17/2019	98	6,852	5,602	4,344	281,950	4,757	0
105	9/18/2019	99	7,054	5,678	4,257	285,780	4,761	0
106	9/18/2019	98	7,039	5,624	5,230	283,495	5,245	0

RECEIVED
Office of Oil and Gas

DEC 30 2019

Department of
Environmental Protection

SAMUEL JONES BRK 206H

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
107	9/18/2019	98	6,708	5,214	4,922	280,174	4,849	0
108	9/18/2019	99	6,806	5,845	5,028	280,666	4,850	0
109	9/18/2019	99	6,656	5,762	4,781	279,612	4,930	0
110	9/18/2019	93	6,491	5,820	4,389	280,068	4,907	0
111	9/18/2019	98	6,628	5,439	4,460	280,008	4,839	0
112	9/18/2019	97	6,656	5,425	4,370	283,810	4,856	0

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Office of Oil and Gas

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WV Department of
Environmental Protection



RECEIVED
Office of Oil and Gas

DEC 30 2019

WV Department of
Environmental Protection

Well Name: Samuel Jones BRK 206H

47009002700000

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	264.00	264.00	
Top of Salt Water	612.00	612.00	NA	NA	
Pittsburgh Coal	397.00	397.00	545.00	545.00	
Pottsville (ss)	545.00	545.00	855.00	855.00	
Raven Cliff (ss)	855.00	855.00	1236.00	1236.00	
Maxton (ss)	1236.00	1236.00	1600.00	1600.00	
Big Injun (ss)	1600.00	1600.00	1714.00	1714.00	
Cashaqua (shale)	5940.00	5754.00	6001.00	5805.00	
Middlesex (shale)	6001.00	5805.00	6090.00	5874.00	
Burket (shale)	6090.00	5874.00	6113.00	5891.00	
Tully (ls)	6113.00	5891.00	6189.00	5941.00	
Mahantango (shale)	6189.00	5941.00	6424.00	6054.00	
Marcellus (shale)	6424.00	6054.00	NA	NA	GAS

LATITUDE: 40°12'30" SURFACE HOLE

5433'

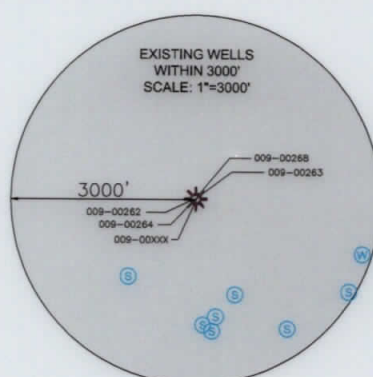
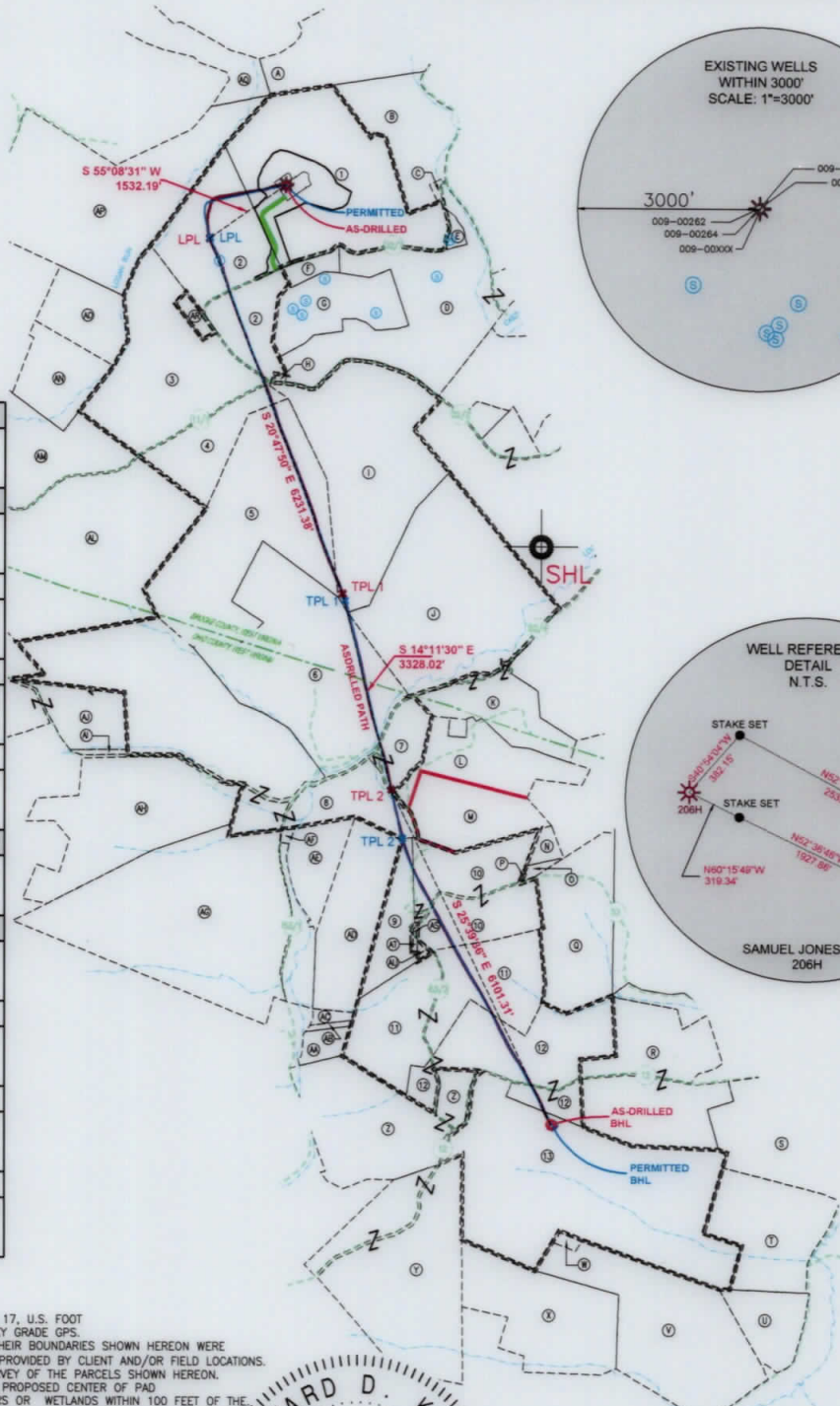
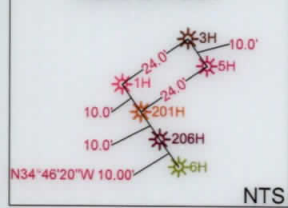
LATITUDE: 40°10'00" BOTTOM HOLE 900'



www.jhacompanies.com

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

WELL LAYOUT



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

6720

6508'

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4448990.39 EASTING: 537359.15
LANDING POINT LOCATION (LPL):
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TURNING POINT LOCATION (TPL 1):
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TURNING POINT LOCATION (TPL 2):
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BOTTOM HOLE LOCATION (BHL):
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SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4448990.39 EASTING: 537359.15
LANDING POINT LOCATION (LPL):
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TURNING POINT LOCATION (TPL 1):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4446953.82 EASTING: 537684.37
TURNING POINT LOCATION (TPL 2):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4445975.06 EASTING: 537949.40
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4444313.11 EASTING: 538782.36

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.
- THIS AS-DRILLED PLAT IS PREPARED FROM THE FINAL WELL PLAT PREPARED BY ELK LAKE SERVICES, LLC AND THE DRILLING INFORMATION IS PROVIDED TO JHA COMPANIES.



3000 0 3000

GRAPHIC SCALE IN FEET

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

P.S. 2041

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

<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)	COMPANY: SAMUEL JONES BRK OPERATOR'S WELL #: 206H API WELL #: 47 009 00270 STATE COUNTY PERMIT
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WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP GAS LIQUID INJECTION STORAGE SHALLOW

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1204.2'

DISTRICT: BUFFALO COUNTY: BROOKE QUADRANGLE: BETHANY, WV

SURFACE OWNER: SAMUEL E. & JUDITH F. JONES ACREAGE: ±164.74

OIL & GAS ROYALTY OWNER: RESOURCE MINERAL HEADWATER I, LP ACREAGE: ±164.74

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

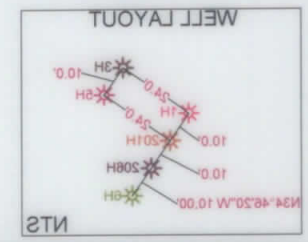
TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6377' TVD 22,337' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: BRITTANY WOODY

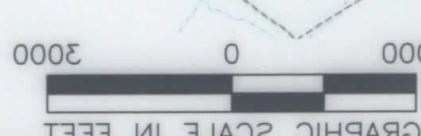
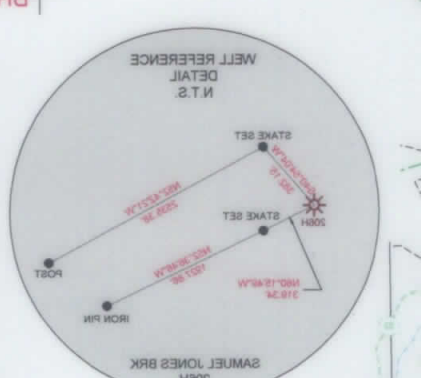
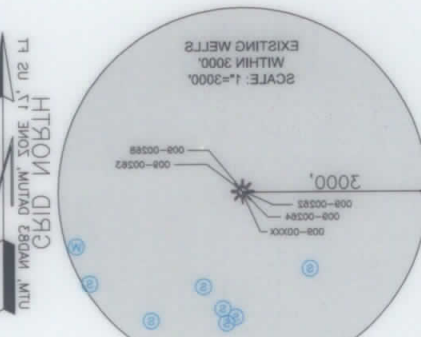
ADDRESS: 1300 FORT PIERPONT DRIVE, SUITE 201 ADDRESS: 1300 FORT PIERPONT DRIVE, SUITE 201

CITY: MORGANTOWN STATE: WV ZIP CODE: 26508 CITY: MORGANTOWN STATE: WV ZIP CODE: 26508

LEGEND: ● EXISTING BOTTOM HOLE * EXISTING / PRODUCING WELLHEAD LPL * EXISTING LANDING POINT LOCATION ● PROPOSED SURFACE HOLE / BOTTOM HOLE LPL * PROPOSED LANDING POINT LOCATION ● EXISTING WATER WELL ● EXISTING SPRING — SURVEYED BOUNDARY = = = LEASE BOUNDARY — AS DRILLED PATH — PROPOSED PATH	REVISIONS: DATE: 12-13-2019 API NO: 47-009-00270 DRAWN BY: D. REED SCALE: 1" = 3000' DRAWING NO: 2019-0265 WELL LOCATION PLAT
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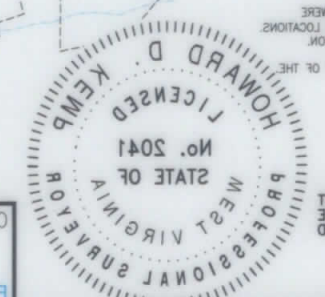
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TURNING POINT LOCATION (TPL 1):	UTM (NAD83, ZONE 17, METERS):
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EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 90):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 91):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 92):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 93):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 94):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 95):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 96):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 97):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 98):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 99):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88
TURNING POINT LOCATION (TPL 100):	UTM (NAD83, ZONE 17, METERS):
EASTING: 526883.59	NORTHING: 4448717.88



LONGITUDE: 80.35.30", SURFACE HOLE
 LONGITUDE: 80.35.30", BOTTOM HOLE
 LATITUDE: 40.10.00", SURFACE HOLE
 LATITUDE: 40.10.00", BOTTOM HOLE

LONGITUDE: 80.35.30", SURFACE HOLE
 LONGITUDE: 80.35.30", BOTTOM HOLE

SWN Production Company, LLC
 COMPANY: SWN
 47 STATE COUNTY PERMIT 009 00270
 OPERATOR'S WELL #: 208H
 SAMUEL JONES BRK



NOTES ON SURVEY
 1. COORDINATE SYSTEM IS UTM HAD 83 DATUM, ZONE 17, U.S. FOOT
 2. ALL COORDINATES ESTABLISHED USING SURVEY GRADE GPS
 3. SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE
 4. PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS
 5. THIS PLAN DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON
 6. NO BUILDINGS OR BUILDINGS WITHIN 655 FEET OF PROPOSED CENTER OF ROAD
 7. NO PERMANENT STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE
 8. LIMITS OF DISTURBANCE
 9. NO NATURALLY OCCURRING THREAT STREAM WITHIN 300 FEET OF
 10. THE LIMITS OF DISTURBANCE
 11. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL
 12. THIS AS-DRILLED PLAN IS PREPARED FROM THE FINAL
 13. INFORMATION IS PROVIDED TO JHA COMPANIES, LLC AND THE DRILLING
 14. INFORMATION REQUIRED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION
 15. PRESCRIBED BY LAW AND REGULATIONS ISSUED AND
 16. THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE
 17. I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT
 P. 2. 2041

WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input checked="" type="checkbox"/> DEEP <input type="checkbox"/> GAS <input type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>	WATERSHED: UPPER OHIO SOUTH	DISTRICT: BUFFALO	COUNTY: BROOKE	SURFACE OWNER: SAMUEL E. & JUDITH F. JONES	OIL & GAS ROYALTY OWNER: RESOURCE MINERAL HEADWATER I, LP	ACRAGE: ±184.74	ACRAGE: ±184.74	QUADRANGLE: BETHANY, WV	ELEVATION: 1504.5'	WELL LAYOUT: UPPER OHIO SOUTH
DRILL <input type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/>	CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE <input checked="" type="checkbox"/> (SPECIFY) AS-DRILLED	TARGET FORMATION: MARCELLUS	ESTIMATED DEPTH: 8377, TMD 25,337, TMD	WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	DESIGNATED AGENT: BRITANNY WOODY	ADDRESS: 1300 FORT PIERPONT DRIVE, SUITE 201	CITY: MORGANTOWN	STATE: WV	ZIP CODE: 26508	DATE: 12-13-2019
LEGEND: <input checked="" type="checkbox"/> EXISTING BOTTOM HOLE <input checked="" type="checkbox"/> EXISTING / PRODUCING WELLHEAD <input checked="" type="checkbox"/> EXISTING LANDING POINT LOCATION <input checked="" type="checkbox"/> PROPOSED SURFACE HOLE / BOTTOM HOLE <input checked="" type="checkbox"/> PROPOSED LANDING POINT LOCATION <input checked="" type="checkbox"/> PROPOSED PATH <input checked="" type="checkbox"/> AS-DRILLED PATH <input checked="" type="checkbox"/> LEASE BOUNDARY <input checked="" type="checkbox"/> SURVEYED BOUNDARY <input checked="" type="checkbox"/> EXISTING SPRING <input checked="" type="checkbox"/> EXISTING WATER WELL	REVISIONS: DRAWING NO: 2019-0282 SCALE: 1" = 3000' DRAWN BY: D. REED API NO: 47-00-00270 DATE: 12-13-2019	WELL LOCATION PLAN	COMPLETION ID 2801162328	PAD ID 3001162328	R:\PROJECTS\2019-0282_SWN JONES PAD\CADD\PLATS\AS-DRILLED\208H\SAMUEL JONES BRK 208H.DWG	FRIDAY DECEMBER 13 2019 11:07AM				

REVISIONS: _____
 COMPANY: _____
 OPERATOR'S: SAMUEL JONES BRK
 WELL #: 208H
 DISTRICT: BUFFALO COUNTY: BROOKE STATE: WV
 DATE: 12-13-2019
 API NO: 47-008-00270
 DRAWN BY: D. REED
 SCALE: N/A
 DRAWING NO: 2019-0282
 WELL LOCATION PLAT

TRACT	SURFACE OWNER	TAX PARCEL
A	GENE C. VALENTINE, TRUST	03-B43-33
B	MARY LOU FONNER	03-B43-58
C	TRACY T. PUSKARICH	03-B43-59
D	ROBERT M. & CHARLOTTE A. CHAMBERS	03-B48-24
E	ALBERT GLENN & REBECCA ANN AYERS	03-B43-81
F	ROBERT M. & CHARLOTTE A. CHAMBERS	03-B48-23
G	HARRY L. & BEVERLY R. CHAMBERS	03-B48-24.1
H	WINDSOR POWER HOUSE COAL COMPANY	03-B48-21
I	SCOTT SONDA & MARK SONDA	03-B48-20
J	MARION PYLE STONE	03-B48-41
K	GRIMES, DONALD & ANTHONY HOUSTON (SURV)	03-B48-40
L	MICHAEL & DEIRDRA O'HARA	03-L2-10.2
M	MICHAEL BREITINGER	03-L2-11
N	JEREMY R. & TANYA N. DEARING	03-L2-12.3
O	G.L. LEMASTERS, JR.	03-L2-12.1
P	G.L. LEMASTERS, JR.	03-L2-12.4
Q	HARRY ALAN FISH	03-L2-13
R	GARY & TERRY KESTNER	03-L2-09
S	GREGORY N. & SHARON LEE MORMANS	03-L8-13
T	WILLIAM I. RODGERS	03-L8-12
U	JEFFREY J. & JOLENE M. EISENHAEUER	03-L8-18
V	DELMER K. & V.G. LOEW	03-L8-19
W	TUNNEL RIDGE, LLC	03-L8-22
X	LYNN MCELVANY	03-L2-28
Y	GEORGE F. SMITH	03-L2-27
Z	DONALD F. & J.L. DOLENCE	03-L2-11
AA	GEORGE W., JR. & LAURIE GROVE	03-L2-07.1
AB	GEORGE W., JR. & L.A. GROVE	03-L2-07.4
AC	CHARLES W. & CHRISTY D. GROUNDS	03-L2-04
AD	CHARLES EDWARD & SHARON BOONE	03-L2-08
AE	WINDSOR COAL COMPANY	03-L2-08.3
AF	ALISHA D. & SCOTT B. MEDLEN	03-L2-07.2
AG	JOAN C. MILLER (LIFE ESTATE)	03-L2-07.1
AH	BAIRD C. KLOSS	03-L2-04
AI	LARRY G. BALL	03-L1-38.5
AJ	LARRY G. BALL	03-L1-38
AK	KEVIN K. & CYNTHIA R. MCGEE	03-L2-12.1
AL	JOHN W. HUPP, JOSEPH T. HUFF & LINDA H. DOUBLE	03-B48-18
AM	WILLIAM BRITT COX	03-B48-08
AN	DAVID F. & SHARON A. DUKE	03-B48-10
AO	CHARLES W. & CHARLOTTE BONAR	03-B48-12
AP	BRIAN DAVID CORWIN	03-B43-22
AQ	BETHANY COLLEGE	03-B38-31
AR	PAUL ROBERT & WENDY KAY SEIDENWITZ	03-B48-18
AS	SHARON L. GILL	03-L2-08.2
AT	SHARON L. GILL	03-L2-08.5
AU	JASON T. & SHEENA R. HAYS	03-L2-12.2

TRACT	SURFACE OWNER (S) \ ROYALTY OWNER (R)	TAX PARCEL
1	SAMUEL E. & JUDITH F. JONES (S) RESOURCE MINERALS HEADWATER, L.P. (R)	03-B43-80
2	ANNA MAE NORDEN	03-B48-22
3	LAWRENCE RAY & JUDITH A. PYLE	03-B48-18
4	MARC P. STONE	03-B48-17
5	MARION P. STONE	03-B48-19
6	SCOTT SONDA & MARK SONDA	03-L2-01
7	WINDSOR COAL COMPANY	03-L2-09
8	SCOTT SONDA & MARK SONDA	03-L2-02
9	CHARLES EDWARD & SHARON BOONE	03-L2-08.4
10	CHAD & JULIE C. COX	03-L2-12
11	TIMOTHY R. & THELMA C. HAYS	03-L2-29
12	JOSEPH E. & MARJORIE G. ENNIS	03-L2-08
13	HELEN & JOHN I., JR. TOMINACK	03-L2-10

