

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

API 47-069-00248 County OHIO District TRIADELPHIA  
Quad WHEELING Pad Name MASON COTTRELL PAD Field/Pool Name PANHANDLE FIELD WET  
Farm name MELVIN W. & CAROL M. KAHLE Well Number MASON COTTRELL OHI 210H  
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 4,436,250.93 Easting 532,606.87  
Landing Point of Curve Northing 4,436,339.09 Easting 533,295.63  
Bottom Hole Northing 4,432,946.97 Easting 535,050.14

Elevation (ft) 1296.3 GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine

Mud Type(s) and Additive(s)  
SOBM

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Date permit issued 10/30/2017 Date drilling commenced 12/19/2017 Date drilling ceased 01/09/2018  
Date completion activities began 03/21/2018 Date completion activities ceased 05/07/2018  
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 387 Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 752 Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 604 Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

**Reviewed**  
*C. J. [Signature]* 8/30/18

Reviewed by:  
*[Signature]* 8/30/18  
09/07/2018

API 47- 069 - 00248 Farm name MELVIN W. & CAROL M. KAHLE Well number MASON COTTRELL OHI 210H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/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	665	NEW	J-55/54.5#	635'; 618'	Y, 19
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	2022	NEW	J-55/36#		Y, 24
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	20338	NEW	HCP-110/23#		Y
Tubing		2.375	7664	NEW	L-80/4.7#		N
Packer type and depth set							

Comment Details Cmt bskt 15' top of jt - 635'; Cmt bskt 1' f/bottom of jt - 618'

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	610	15.60	1.20	732	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	762	15.60	1.19	906.78	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	3788	15.60	1.19	4507.72	SURFACE	24
Tubing							

Drillers TD (ft) 20338 Loggers TD (ft) 20338  
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5705

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

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Well cored  Yes  No Conventional Sidewall Were cuttings collected  Yes  No

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

SURFACE: 7 CENTRALIZERS - EVERY THIRD JOINT OF CASING

INTERMEDIATE: 24 CENTRALIZERS - EVERY THIRD JOINT OF CASING

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

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

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

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

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API 47- 069 - 00248 Farm name MELVIN W. & CAROL M. KAHLE Well number MASON COTTRELL OHI 210H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
	SEE	ATTACHMENT 5	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 5	2				

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Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
MARCELLUS	6378	TVD 7454 MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 2309 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas 1647 mcfpd Oil 205 bpd NGL \_\_\_\_\_ bpd Water 36 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
	SEE	ATTACHMENT	3		

Please insert additional pages as applicable.

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

Logging Company WEATHERFORD  
Address 121 HILLPOINTE DRIVE STE 300 City CANONSBURG State PA Zip 15317

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

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Stimulating Company HALLIBURTON ENERGY SERVICES  
Address 14851 MILNER ROAD, GATE 5A City HOUSTON State TX Zip 77032

Please insert additional pages as applicable.

Completed by BOBBY WILLIS Telephone 832-796-2884  
Signature  Title REGULATORY ANALYST Date 08/01/2018

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

09/07/2018

**MASON COTTRELL OHI 210H  
ATTACHMENT 1  
PERF REPORT**

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	2/3/2018	20,221	20,114	42
2	3/21/2018	20,081	19,974	42
3	3/22/2018	19,936	19,834	42
4	3/23/2018	19,801	19,698	42
5	3/24/2018	19,661	19,554	42
6	3/24/2018	19,517	19,414	42
7	3/24/2018	19,381	19,279	42
8	3/25/2018	19,241	19,134	42
9	3/25/2018	19,101	18,994	42
10	3/25/2018	18,961	18,858	42
11	3/26/2018	18,821	18,714	42
12	3/27/2018	18,681	18,574	42
13	3/27/2018	18,541	18,441	42
14	3/27/2018	18,401	18,294	42
15	3/28/2018	18,261	18,154	42
16	3/28/2018	18,121	18,014	42
17	3/28/2018	17,981	17,874	42
18	3/29/2018	17,841	17,734	42
19	3/29/2018	17,701	17,598	42
20	3/29/2018	17,561	17,454	42
21	3/30/2018	17,421	17,314	42
22	3/30/2018	17,281	17,171	42
23	3/30/2018	17,141	17,034	42
24	3/30/2018	17,001	16,894	42
25	3/31/2018	16,861	16,754	42
26	3/31/2018	16,721	16,614	42
27	3/31/2018	16,581	16,474	42
28	4/1/2018	16,441	16,334	42
29	4/1/2018	16,301	16,194	42
30	4/1/2018	16,161	16,054	40
31	4/1/2018	16,021	15,914	42
32	4/2/2018	15,881	15,774	42
33	4/2/2018	15,737	15,634	42
34	4/2/2018	15,601	15,494	42
35	4/3/2018	15,461	15,351	45
36	4/4/2018	15,321	15,214	42
37	4/5/2018	15,181	15,074	42
38	4/5/2018	15,041	14,934	42
39	4/5/2018	14,901	14,794	42
40	4/6/2018	14,761	14,654	42
41	4/7/2018	14,621	14,514	42
42	4/7/2018	14,481	14,374	42
43	4/7/2018	14,341	14,234	42

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STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
44	4/8/2018	14,199	14,094	42
45	4/8/2018	14,061	13,954	42
46	4/8/2018	13,921	13,814	42
47	4/8/2018	13,781	13,674	42
48	4/9/2018	13,641	13,534	42
49	4/9/2018	13,501	13,394	42
50	4/9/2018	13,361	13,254	42
51	4/10/2018	13,221	13,114	42
52	4/11/2018	13,081	12,974	42
53	4/11/2018	12,941	12,834	42
54	4/12/2018	12,801	12,694	42
55	4/12/2018	12,661	12,554	42
56	4/13/2018	12,514	12,414	42
57	4/13/2018	12,381	12,274	42
58	4/14/2018	12,241	12,134	42
59	4/14/2018	12,101	11,994	41
60	4/15/2018	11,961	11,824	42
61	4/15/2018	11,821	11,714	42
62	4/16/2018	11,646	11,574	42
63	4/16/2018	11,541	11,434	42
64	4/16/2018	11,401	11,294	42
65	4/17/2018	11,261	11,154	42

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ATTACHMENT 2  
STIM REPORT

STAGE NUM	Stim 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
1	3/20/2018	12.5	6,285		5,515	9,060	4,019	0
2	3/21/2018	84.8	10,179		4,212	504,040	11,183	0
3	3/22/2018	90.2	9,742	6,495	4,517	490,540	7,937	0
4	3/23/2018	99.6	10,217	5,951	4,857	494,260	9,196	0
5	3/24/2018	99.7	10,062	5,655	4,925	501,580	8,354	0
6	3/24/2018	99.8	10,271	6,330	4,971	511,940	7,936	0
7	3/24/2018	99.7	9,848	5,707	4,925	496,090	8,212	0
8	3/25/2018	98.8	10,036	6,104	4,898	492,410	7,554	0
9	3/25/2018	100.2	10,060	5,803	4,831	506,350	8,062	0
10	3/26/2018	90.6	9,781	5,334	4,749	484,260	7,918	0
11	3/27/2018	99.9	9,733	6,040	5,058	496,170	7,589	0
12	3/27/2018	99.3	10,214	6,300	4,673	496,500	8,297	0
13	3/27/2018	99.7	9,916	5,810	4,986	510,660	7,289	0
14	3/27/2018	100	9,855	5,887	4,910	499,720	7,700	0
15	3/28/2018	100.1	9,866	6,398	4,885	495,960	7,751	0
16	3/28/2018	100.5	9,876	6,371	4,740	492,740	7,606	0
17	3/28/2018	100.3	9,643	5,886	4,915	492,740	7,770	0
18	3/29/2018	100.6	9,632	6,306	4,832	506,240	7,652	0
19	3/29/2018	98.2	10,241	6,439	4,803	501,480	7,744	0
20	3/29/2018	99.6	9,903	5,631	4,951	500,680	7,694	0
21	3/30/2018	99.9	9,484	5,318	4,741	501,210	7,019	0
22	3/30/2018	98.4	10,227	5,779	4,986	499,580	7,745	0
23	3/30/2018	100.1	9,680	5,349	4,805	502,300	7,438	0
24	3/31/2018	100	9,677	6,196	4,719	503,040	7,388	0
25	3/31/2018	98.8	10,405	6,068	5,122	491,260	7,552	0
26	3/31/2018	99.7	9,540	5,672	4,696	505,940	7,879	0
27	3/31/2018	100	9,372	6,436	4,915	509,180	7,218	0
28	4/1/2018	99.6	10,154	5,915	4,782	499,200	7,508	0
29	4/1/2018	99	9,954	6,105	4,817	496,406	7,839	0
30	4/1/2018	100.6	9,452	5,673	4,618	495,520	7,437	0
31	4/2/2018	99.8	9,547	6,163	4,795	507,540	7,293	0
32	4/2/2018	96.3	9,246	5,842	4,741	516,400	7,649	0
33	4/2/2018	99.9	9,950	6,568	4,755	500,160	7,330	0
34	4/3/2018	99.3	10,079	7,005	4,754	508,490	7,519	0
35	4/4/2018	96.4	9,837	6,392	4,839	494,580	9,435	0
36	4/4/2018	100.2	9,623	6,097	4,821	495,520	7,351	0
37	4/5/2018	90	8,990	6,092	4,826	506,520	7,591	0
38	4/5/2018	96.2	9,319	5,959	4,610	500,800	7,719	0
39	4/6/2018	97.5	9,563	6,184	4,885	507,640	7,977	0
40	4/7/2018	97.9	8,937	5,828	4,995	502,360	9,703	0
41	4/7/2018	93.9	8,640	5,699	4,449	505,020	7,438	0
42	4/7/2018	98.6	8,708	5,759	4,758	490,653	7,297	0
43	4/7/2018	99.9	9,733	6,545	4,915	509,660	7,316	0
44	4/8/2018	98.2	8,931	6,189	4,970	512,760	6,968	0
45	4/8/2018	99.1	8,817	6,472	4,659	514,800	7,266	0
46	4/8/2018	100	9,482	5,941	4,326	513,320	7,834	0
47	4/9/2018	100.3	8,579	5,675	4,602	511,160	7,494	0
48	4/9/2018	98.7	8,812	5,879	4,695	510,260	7,231	0
49	4/9/2018	99.9	9,245	6,288	4,631	510,600	7,070	0
50	4/10/2018	97.5	8,517	6,295	4,650	507,340	7,268	0
51	4/10/2018	97.2	8,223	5,843	4,703	516,680	6,679	0
52	4/11/2018	100.6	8,359	6,622	5,001	518,160	7,113	0
53	4/12/2018	99.9	8,155	6,096	4,692	513,500	7,112	0
54	4/12/2018	99.4	8,102	6,195	4,631	509,560	7,118	0
55	4/13/2018	98.8	8,026	7,071	4,824	510,260	7,118	0
56	4/13/2018	99.5	8,144	6,704	4,582	510,020	7,334	0
57	4/14/2018	97	7,679	5,866	4,862	507,540	7,770	0
58	4/14/2018	98.7	8,002	5,695	4,718	507,220	6,738	0
59	4/15/2018	99.5	7,708	6,218	4,680	508,760	7,155	0
60	4/15/2018	97.2	7,881	5,381	4,752	503,640	6,602	0
61	4/15/2018	98.8	8,082	6,010	4,832	510,100	6,395	0
62	4/16/2018	98.4	8,299	5,484	4,859	505,560	6,470	0
63	4/16/2018	95.5	8,093	5,805	4,801	491,940	5,841	0
64	4/17/2018	100.1	8,126	5,593	4,793	505,060	5,676	0
65	4/17/2018	97	8,457	5,876	4,567	503,260	5,462	0

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Well Name: **Mason Cottrell OHI 210H** **47069002480000**

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	387.00	387.00	
Top of Salt Water	752.00	752.00	NA	NA	
Pittsburgh Coal	604.00	604.00	NA	NA	
Pottsville (ss)	744.00	744.00	806.00	806.00	
Mauch Chunk (shale)	NA	NA	NA	NA	
Raven Cliff (ss)	1057.00	1057.00	1284.00	1284.00	
Maxton (ss)	1486.00	1486.00	1762.00	1762.00	
Greenbriar (ls)	NA	NA	NA	NA	
Big Injun (ss)	1762.00	1762.00	1967.00	1967.00	
Berea (siltstone)	NA	NA	NA	NA	
Rhinesfreet (shale)	NA	NA	NA	NA	
Cashaqua (shale)	NA	NA	NA	NA	
Middlesex (shale)	6379.00	6135.00	6489.00	6194.00	
Burket (shale)	6489.00	6194.00	6505.00	6201.00	
Tully (ls)	6505.00	6201.00	6630.00	6243.00	
Mahantango (shale)	6630.00	6243.00	7454.00	6378.00	
Marcellus (shale)	7454.00	6378.00	NA	NA	GAS

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/20/2018
Job End Date:	4/27/2018
State:	West Virginia
County:	Ohio
API Number:	47-069-00248-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Mason Cottrell 210H
Latitude:	40.07589500
Longitude:	-80.61758300
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,438
Total Base Water Volume (gal):	27,105,546
Total Base Non Water Volume:	0

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## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	81.61350	Density = 8.340
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	1.05762	

FDP-S1016-11	Halliburton	Friction Reducer										
							Listed Below					
3rd Party Scale Inh	Nalco	Scale Inhibitor										
							Listed Below					
3rd Party Biocide	Nalco	Biocide										
							Listed Below					
HAI-150E	Halliburton	Corrosion Inhibitor										
							Listed Below					
SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant										
							Listed Below					
SAND-COMMON WHITE - 100 MESH, 3307 LB BAG	Halliburton	Proppant										
							Listed Below					
HYDROCHLORIC ACID	Halliburton	Solvent										
							Listed Below					
Items above are Trade Names with the exception of Base Water. Items below are the individual ingredients.												
							Crystalline silica, quartz	14808-60-7	100.00000	17.27395		
							Hydrochloric acid	7647-01-0	15.00000	0.15172		
							Polyacrylate	Proprietary	30.00000	0.02310		

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				Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02310	
				Methanol	67-56-1	60.00000	0.01129	
				Benzyl-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00565	
				Amide	Proprietary	5.00000	0.00385	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
				Salts	Proprietary	5.00000	0.00385	
				Alcohols, C12-16, ethoxylated	68551-12-2	5.00000	0.00385	
				Glutaraldehyde	111-30-8	10.00000	0.00188	
				Ethylene Glycol	107-21-1	30.00000	0.00150	
				Amine Triphosphate	Proprietary	30.00000	0.00150	
				Fatty acid ester	Proprietary	1.00000	0.00077	
				Inorganic salt	Proprietary	1.00000	0.00077	
				Non-hazardous food substance	Proprietary	100.00000	0.00031	

\* 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

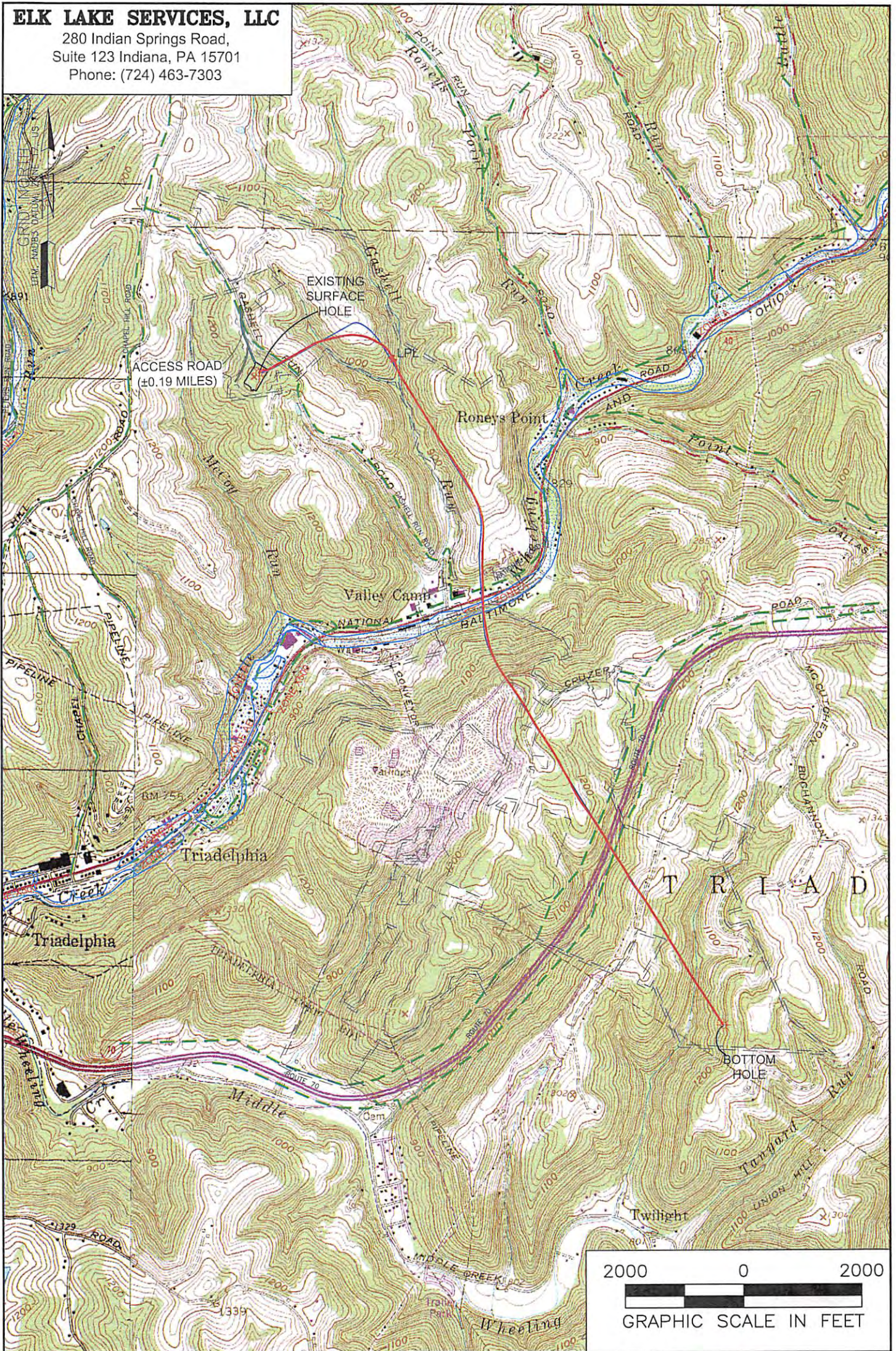
Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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**ELK LAKE SERVICES, LLC**

280 Indian Springs Road,  
Suite 123 Indiana, PA 15701  
Phone: (724) 463-7303



**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 ✕ LANDING POINT LOCATION
- FLOOD PLAIN
- ACCESS ROAD
- PUBLIC ROAD
- ACCESS ROAD TO PREV. SITE
- LEASE BOUNDARY
- ASDRILLED PATH
- PROPOSED PATH

WELL OPERATOR:  
SWN PRODUCTION COMPANY, LLC

ADDRESS:  
P.O. BOX 1300 JANE LEW, WV 26378

SURFACE OWNER:  
LOUIS COTTRELL, JR., AS TRUSTEE FOR MASON LOUIS COTTRELL

WELL (FARM) NAME: MASON COTTRELL OHI	WELL # 210H	SERIAL # XXXX
COUNTY OHIO COUNTY - 69	DISTRICT: TRIADDELPHIA	
USGS 7 1/2 QUADRANGLE MAP NAME VALLEY GROVE, WV		

09/07/2018

Latitude: 40°05'00"

SURFACE HOLE 9582'

Latitude: 40°05'00" BOTTOM HOLE 1616'

**ELK LAKE SERVICES, LLC**  
280 Indian Springs Road,  
Suite 123 Indiana, PA 15701  
Phone: (724) 463-7303

**SURFACE HOLE LOCATION (SHL):**

UTM (NAD83, ZONE 17, METERS):  
NORTHING: 4,436,250.93  
EASTING: 532,606.87

**LANDING POINT (LPL):**

UTM (NAD83, ZONE 17, METERS):  
NORTHING: 4,436,339.09  
EASTING: 533,295.63

**BOTTOM HOLE LOCATION (BHL):**

UTM (NAD83, ZONE 17, METERS):  
NORTHING: 4,432,946.97  
EASTING: 535,050.14

**SURFACE HOLE LOCATION (SHL):**

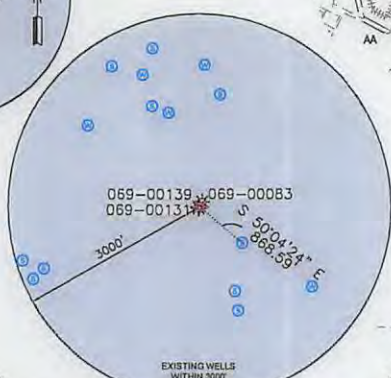
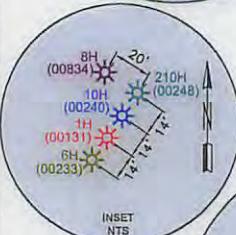
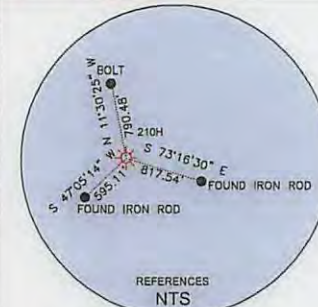
UTM (NAD83, ZONE 17, METERS):  
NORTHING: 4,436,250.96  
EASTING: 532,606.90

**LANDING POINT (LPL):**

UTM (NAD83, ZONE 17, METERS):  
NORTHING: 4,436,407.84  
EASTING: 533,238.97

**BOTTOM HOLE LOCATION (BHL):**

UTM (NAD83, ZONE 17, METERS):  
NORTHING: 4,432,945.20  
EASTING: 535,047.68



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



**WELL RESTRICTIONS**

1. NO OCCUPIED DWELLINGS > 2500 SQ FT. WITHIN 625 FEET OF CENTER OF PAD.
2. NO AGRICULTURE BUILDINGS > 2500 SQ FT. WITHIN 625 FEET OF CENTER OF PAD.
3. WATER WELLS OR DEVELOPED SPRINGS ARE WITHIN 888.59 FEET OF PROPOSED WELL.
4. PERENNIAL STREAMS, LAKES, PONDS, OR RESERVOIRS ARE WITHIN THE LIMITS OF DISTURBANCE.
5. NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.
6. 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**

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.

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. 2164



COMPANY: **SWN** Production Company, LLC

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

MASON COTTRELL OHI  
OPERATOR'S WELL #: 210H  
API WELL #: 47 069 00248  
STATE COUNTY PERMIT

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

WATERSHED: UPPER OHIO SOUTH ELEVATION: 1296.3'

DISTRICT: TRIADDELPHIA COUNTY: OHIO COUNTY QUADRANGLE: VALLEY GROVE, WV

SURFACE OWNER: LOUIS COTTRELL, JR., AS TRUSTEE FOR MASON LOUIS COTTRELL ACREAGE: ±37.4750

OIL & GAS ROYALTY OWNER: LOUIS COTTRELL, JR., AS TRUSTEE FOR MASON LOUIS COTTRELL ACREAGE: ±37.4750

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: 6,516' TVD 20,338' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: BRITTANY WOODY  
ADDRESS: P.O. BOX 1300 ADDRESS: P.O. BOX 1300  
CITY: JANE LEW STATE: WV ZIP CODE: 26378 CITY: JANE LEW STATE: WV ZIP CODE: 26378

<b>LEGEND:</b>	— SURVEYED BOUNDARY	<b>REVISIONS:</b>	DATE: 07-27-2018
○ PROPOSED SURFACE HOLE / BOTTOM HOLE	— DRILLING UNIT		FILE NO: 16-53
⊙ EXISTING / PRODUCING WELLHEAD	— LEASE BOUNDARY		DRAWN BY: JMB
LPL * LANDING POINT LOCATION	— ASDRILLED PATH		SCALE: 1" = 2000'
⊙ EXISTING WATER WELL	— PROPOSED PATH		DRAWING NO: 1
⊙ EXISTING SPRING			WELL LOCATION PLAT 1

# ELK LAKE SERVICES, LLC



280 Indian Springs Road,  
Suite 123 Indiana, PA 15701  
Phone: (724) 463-7303

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS			
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	LOUIS COTTRELL, JR., AS TRUSTEE FOR MASON LOUIS COTTRELL (S/R)	06-T3-1.1	37.4750
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
2	ELWOOD FRED, JR. & CHRISTINE ANN RICHTER	6-T3-4.1	26.61
3	PAUL R. & JOYCE A. SCOTT	6-T3-3	107.1700
4	RAYMOND E. CROW	6-T8-7	143.6125
5	LD REALTY, INC	6-T8-3	8.658
6	WEST VIRGINIA DOT	SR 40	UNK
7	LD REALTY, INC	6-T8-3.12	0.70
8	LD REALTY, INC	6-T8-58.1	1.0615
9	THE OHIO COUNTY COMMISSION	6-T8-40	105.3700
10	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-40.11	231.73
11	RSV WHEELING LLC	6-T8-40.58	2.9600
12	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-40.61	14.4500
13	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-40.37	1.0600
14	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-40.78	2.4800
15	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-40.17	22.114
16	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-40.48	2.0000
17	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-40.51	6.3900
18	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-40.50	3.0000
19	TARGET CORPORATION	6-T8-40.32	12.4700
20	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-40.18	3.03
21	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-40.13	5.15
22	THE OHIO COUNTY DEVELOPMENT AUTHORITY	6-T8-68	1.6800
23	WEST VIRGINIA DOT	I70	UNK
24	GREGORY R. & MARY REBECCA GANTZER	6-T13-7	66.0300
25	GEORGE E. III & PATRICIA J. GANTZER	6-T13-27	16.288
26	RUSSELL GANTZER	6-T13-7.2	2.8
27	JOHN M. & ROBYN R. REIHNER & STEPHEN REIHNER	6-T13-15	96.955

ADJOINING OWNERS TABLE			
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
A	MELVIN W. KAHLER JR.	6-T2-35	16.594
B	MELVIN W. KAHLER JR.	6-T2-36	30.06
C	CHARLES R. III & MELISSA R. OCH	6-TB-1	22.605
D	LOUIS COTTRELL, JR	6-T3-1.2	2.5
E	JAMES C. GOMPERS	6-T3-4.2	47.81
F	MILDRED ELAINE BOREMAN	6-TB-6	1.76
G	JASON A. AND NICOLE D. MARSHALL	6-TB-6.5	34.67
H	L D REALTY, INC	6-TB-3.6	4.394
I	CHARLES R. & MONA L. CUNNINGHAM	6-TB-3.2	1.176
J	KIM STEPHENS MATTIS & FAYE MATTIS	6-TB-6.1	0.245
K	KIM S. & FAYE MATTIS	6-TB-6.4	0.0769
L	CHARLES E. & THERESA NORMAN	6-TB-6.2	0.451
M	JAMES H. & NORMA L. LUCAS	6-TB-6.3	0.48
N	L D REALTY INC	6-TB-3.9	1.956
O	CB PROPERTIES LLC	6-TB-3.8	2.081
P	OHIO VALLEY BAPTIST CHURCH	6-TB-3.4	0.279
Q	PHK LLC	6-TB-3.11	0.506
R	PHK LLC	6-TB-55	0.8
S	PHK LLC	6-TB-3.13	0.4176
T	PHK LLC	6-TB-59	0.537
U	PHK LLC	6-TB-57	0.332
V	BETTY WOODS NUTTING	6-TB-40.62	4.925
W	BETTY WOODS NUTTING	6-TB-40.10	19.14
X	MICHAEL E. RICHARDS & LEROY E. RICHARDS	6-TB-41.2	12.437
Y	MARCIA KIRKLAND	6-TB-41.1	12.437
Z	CHRISTOPHER F. & ALYCE F. PAGANO	6-TB-62	5.159
AA	THOMAS J. HOWARD	6-TB-42	11.291
BB	OHIO COUNTY DEVELOPMENT	6-TB-40.5	108.996
CC	OHIO COUNTY DEVELOPMENT	6-TB-40.45	59.94
DD	OHIO COUNTY DEVELOPMENT	7-TW10-1	106.51
EE	CONGREGATION L'SHEM SHOMAYIM	7-TW12-13	13.19
FF	DAVID A. OBRIEN	6-T13-3.1	20.425
GG	MENARD, INC.	6-TB-40.57	27.8
HH	MENARD, INC.	6-TB-40.69	15.57
II	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.70	0.92
JJ	OHIO COUNTY DEVELOPMENT	6-TB-40.28	7.019
KK	OHIO COUNTY DEVELOPMENT	6-TB-40.27	4.011
LL	OHIO COUNTY DEVELOPMENT	6-TB-40.26	3.008
MM	WAL-MART REAL ESTATE BUSINESS TRUST	6-TB-40.30	21.61
NN	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.65	1.815
OO	255 MAIN STREET, L.L.C	6-TB-40.49	1.378
PP	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.76	0.157
QQ	OHIO COUNTY DEVELOPMENT	6-TB-40.18	2.92
RR	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.54	3.97
SS	TRIADPHIA ASSOCIATES, LLC, & PLAZA AT THE HIGHLANDS ASSOCIATES, LLC	6-TB-40.67	2.6
TT	OHIO COUNTY DEVELOPMENT	6-TB-40.55	0.35
UU	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.56	0.72
VV	FCPT RESTAURANT PROPERTIES, LLC	6-TB-40.46	1.68
WW	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.41	7.45
XX	KOHL'S	6-TB-40.42	6.3
YY	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.53	4.99
ZZ	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.52	13.0
AB	CENTURY TC5, LLC	6-TB-40.71	2.00
AC	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.60	1.37
AD	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.47	1.97
AE	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.40	26.34
AF	GEORGE E. GANTZER III	6-T13-6.2	82.019
AG	WILLIAM A. ISALY JR.	6-T13-7.1	2.8
AH	GREGORY R. & MARY REBECCA GANTZER	6-T13-7.3	2.8
AI	RUSSELL F. GANTZER	6-T13-7.4	2.8
AJ	GREGORY R. GANTZER	6-T13-8	3.586

ADJOINING OWNERS TABLE			
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
AK	GEORGE E. III & PATRICIA C. GANTZER	6-T13-9	79.55
AL	FRANK J. RODAK	6-T13-14	102.28
AM	BRIANNA DAWN RODAK	6-T13-14.2	8.117
AN	WILLIAM & MARY J. LANGMYER	6-T13-14.1	3.6
AO	WILLIAM & MARY J. LANGMYER	6-T13-17.2	21.6
AP	DEBORAH ANN & SETH COLLIN CRAIG	6-T13-16	84.63
AQ	THOMAS D. REIHNER	6-T13-15.1	2.045
AR	JONATHAN P. DUGGAN & JAMES P. DUGGAN	6-TB-46	67.966
AS	GEORGE E., III & PATRICIA C. GANTZER	6-TB-49	20.26
AT	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.74	5.27
AU	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.19	1.86
AV	RUSSELL STOVER CANDIES INC	6-TB-40.24	1.25
AW	APPALACHIAN LAND & LEASING COMPANY LLC	6-TB-40.25	1.82
AX	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.34	0.85
AY	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.77	0.435
AZ	PTM LP	6-TB-40.59	2.53
BA	OHIO COUNTY DEVELOPMENT	6-TB-40.38	1.16
BC	NATIONAL RETAIL PROPERTIES, LP	6-TB-40.39	2.29
BD	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.33	1.60
BE	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.36	1.20
BF	CENTURY HOSPITALITY	6-TB-40.68	2.0
BG	OHIO COUNTY DEVELOPMENT AUTHORITY	6-TB-40.44	0.46
BH	OHIO COUNTY DEVELOPMENT	6-TB-40.20	6.45
BI	GAIL W. KAHLER	6-TB-38	18.865
BJ	PHK LLC	6-TB-58	2.65
BK	PHK LLC	6-TB-3.14	0.3627
BL	CHARLES E. NORMAN	6-TB-7.2	0.64
BM	RAYMOND CROW & SANDRA L. CROW	6-TB-7.4	0.685
BN	RAYMOND CROW & SANDRA L. CROW	6-TB-7.3	0.685
BO	JAMES H. LUCAS	6-TB-8.4	1.708
BP	KENNETH W. MURRAY, SR., & WILBUR E. MURRAY, JR.	6-TB-8	1.498
BQ	GLORIA J. & DAVID M. GREEN	6-TB-8.3	1.726
BR	HOLLY LYNN NORMAN	6-TB-8.2	2.902
BS	JOSEPH L. & SALLY PARSONS	6-TBB-1	5.0
BT	JOSEPH L. & SALLY PARSONS	6-T3P-1	5.96
BU	RUSSELL W. BEABOUT	6-T3Q-8	15.381
BV	TIMMY B. & AMY LYNN MINCH	6-T3-5	161.8
BW	EDWARD A. HATCHER	3-L13-1.5	5.0
BX	ANNA C. MAXWELL, TRUSTEE OF THE ANNA C. MAXWELL REVOCABLE TRUST	3-L13-1	206
BY	HELEN J. MILLER	4-R18-11	128.65
BZ	JAMES B. & KRISTAL A. TEMPLE	4-R18-11.1	3.208
CA	JANET C. WINEMAN SPARKS	6-T2-31	7.85
CB	KERRY A., JR., & DANIELLE M. PHILLIPS	6-T3-3.2	0.585
CD	WILLIAM CLIFFORD & RACHEL DAWN COLEMAN	6-T2-32	19.592
CE	CARL E. & SONDRAM M. GROVER	6-T3-31	1.00
CF	JAMES J. KUTHY	6-T3-32	1.00
CG	CLARISS L. PAUL & WALTER R. PAUL JR & WALTER R. PAUL SR	6-T3-30	0.7
CH	CLARISS L. PAUL & WALTER R. PAUL JR & WALTER R. PAUL SR	6-T3-29	0.277
CI	MATTHEW BLAIR & AMBER LYNN HINES	6-T3-2	6.48
CJ	RAYMOND MICHAEL RAINES	6-T3-2.1	0.82
CK	RAYMOND MICHAEL RAINES	6-T3-2.2	1.0
CL	GEORGIA A. PETTIT, PATRICIA HARTON & DEBORAH PETTIT	6-TB-60	0.077
CM	GEORGIA A. PETTIT, PATRICIA HARTON & DEBORAH PETTIT	6-TB-61	0.228
CN	KIM STEPHEN MATTIS & FAYE MATTIS	6-TB-6.4	0.0769
CO	GEORGIA A. PETTIT, PATRICIA HARTON & DEBORAH PETTIT	6-TB-3.3	3.2

09/07/2018

REVISIONS:	COMPANY:	 	
	OPERATOR'S	MASON COTTRELL OHI	
	WELL #:	210H	
	DISTRICT:	COUNTY:	STATE:
	TRIADPHIA	OHIO COUNTY	WV
			DATE: 07-26-2018
			FILE NO: 16-53
			DRAWN BY: JMB
			SCALE: N/A
			DRAWING NO: 1
			WELL LOCATION PLAT 1