

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

API 47-069-00215 County OHIO District TRIADELPHIA
Quad VALLEY GROVE Pad Name DEBORAH CRAIG-OHI-PAD1 Field/Pool Name PANHANDLE
Farm name CRAIG, DEBORAH ANN Well Number DEBORAH CRAIG OHI 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 NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,433,149.649 Easting 535,435.751
Landing Point of Curve Northing 4,433,667.761 Easting 535,501.889
Bottom Hole Northing 4,435,072.654 Easting 534,698.109

Elevation (ft) 1329.3 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 2/16/2017 Date drilling commenced 05/08/2017 Date drilling ceased 06/29/2017
Date completion activities began 8/25/2017 Date completion activities ceased 10/16/2017
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 560' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 812' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 687' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

03/02/2018

API 47- 069 - 00215 Farm name CRAIG, DEBORAH ANN Well number DEBORAH CRAIG OHI 5H

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	20	20	126'	NEW	J-55/94#		Y
Surface	17.5	13.375	735'	NEW	J-55/54.5#		Y, 20 BBLS
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	2139'	NEW	J-55/36#		Y, 33 BBLS
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	12524'	NEW	HCP-110/20#		Y
Tubing		2.375	7057'	NEW	P-110/4.7#		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	604	15.60	1.20	724.8	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	1264	15.60	1.19	1504.16	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	911/1264	15.60	1.21/1.19	1102.31/1504.16	SURFACE	24
Tubing							

Drillers TD (ft) 12524' Loggers TD (ft) 12524'
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5956'

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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 _____

API 47- 069 - 00215 Farm name CRAIG, DEBORAH ANN Well number DEBORAH CRAIG OHI 5H

PERFORATION RECORD

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

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Please insert additional pages as applicable.

API 47- 069 - 00215 Farm name CRAIG, DEBORAH ANN Well number DEBORAH CRAIG OHI 5H

PRODUCING FORMATION(S)	DEPTHS	
MARCELLUS	6535'	TVD 12524' MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump
 SHUT-IN PRESSURE Surface 1988 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs
 OPEN FLOW Gas 3125 mcfpd Oil 206 bpd NGL _____ bpd Water 229 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 ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		
	SEE	ATTACHMENT	3		

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Please insert additional pages as applicable.

Drilling Contractor SWN DRILLING COMPANY
 Address PO BOX 12359 City SPRING State TX Zip 77391-2359 WV Department of Environmental Protection
 Logging Company WEATHERFORD
 Address 2000 ST. JAMES PLACE City HOUSTON State TX Zip 77056
 Cementing Company SCHLUMBERGER WELL SERVICES
 Address 110 SCHLUMBERGER DRIVE City SUGAR LAND State TX Zip 77478
 Stimulating Company US WELL SERVICES
 Address 770 S POST OAK LN #405 City HOUSTON State TX Zip 77056

Please insert additional pages as applicable.

Completed by DENISE GRANTHAM Telephone 832-796-6139
 Signature *Denise Grantham* Title REGULATORY TECHNICIAN Date 1/3/2018

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

DEBORAH CRAIG OHI 5H
PERF SUMMARY

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	8/4/2017	12,344	12,416	72
2	8/25/2017	12,239	12,311	72
3	8/25/2017	12,134	12,206	72
4	8/25/2017	12,029	12,101	72
5	8/26/2017	11,924	11,996	72
6	8/26/2017	11,819	11,891	72
7	8/27/2017	11,714	11,786	72
8	8/27/2017	11,609	11,681	72
9	8/27/2017	11,504	11,576	72
10	8/28/2017	11,399	11,471	72
11	8/28/2017	11,294	11,366	72
12	8/29/2017	11,189	11,261	72
13	8/29/2017	11,089	11,156	72
14	8/29/2017	10,979	11,051	72
15	8/30/2017	10,874	10,946	72
16	8/30/2017	10,769	10,841	72
17	8/30/2017	10,664	10,736	72
18	8/31/2017	10,559	10,631	72
19	8/31/2017	10,454	10,526	72
20	8/31/2017	10,349	10,421	72
21	9/1/2017	10,242	10,316	72
22	9/1/2017	10,139	10,211	72
23	9/1/2017	10,034	10,106	72
24	9/2/2017	9,929	10,001	72
25	9/2/2017	9,824	9,896	72
26	9/2/2017	9,719	9,791	72
27	9/3/2017	9,614	9,686	72
28	9/3/2017	9,509	9,581	72
29	9/4/2017	9,404	9,476	72
30	9/4/2017	9,299	9,371	72
31	9/5/2017	9,194	9,266	72
32	9/5/2017	9,089	9,161	72
33	9/6/2017	8,984	9,056	72
34	9/7/2017	8,875	8,951	72
35	9/7/2017	8,774	8,846	72
36	9/8/2017	8,669	8,741	72
37	9/8/2017	8,564	8,636	72
38	9/10/2017	8,459	8,531	72
39	9/10/2017	8,354	8,426	72
40	9/10/2017	8,249	8,321	72
41	9/10/2017	8,144	8,216	72
42	9/11/2017	8,039	8,111	72
43	9/11/2017	7,934	8,006	72
44	9/12/2017	7,829	7,901	72
45	9/13/2017	7,724	7,796	72
46	9/14/2017	7,619	7,691	72
47	9/14/2017	7,514	7,586	72
48	9/15/2017	7,409	7,481	72

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DEBORAH CRAIG OHI SH
PERF SUMMARY

49	9/15/2017	7,304	7,376	72
50	9/16/2017	7,199	7,271	72
51	9/16/2017	7,094	7,166	72

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03/02/2018

DEBORAH CRAIG OHI 5H
FRAC STAGE SUMMARY

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	8/4/2017	85	7,051	7,256	3,987	437,600	10,250	
2	8/25/2017	89	7,430	8,154	4,382	434,700	8,672	
3	8/25/2017	85	7,145	7,549	4,533	436,920	9,096	
4	8/25/2017	85	7,352	7,718	4,707	439,200	8,836	
5	8/26/2017	86	7,551	8,078	4,732	438,660	9,042	
6	8/26/2017	86	7,402	8,350	4,844	436,040	8,846	
7	8/27/2017	83	7,107	7,393	4,885	434,218	8,842	
8	8/27/2017	85	7,132	7,404	5,078	439,000	9,006	
9	8/27/2017	83	7,208	7,676	4,691	436,890	8,946	
10	8/28/2017	83	7,073	7,251	4,806	427,550	8,566	
11	8/28/2017	82	8,415	9,221	4,619	427,520	8,916	
12	8/29/2017	85	7,062	8,234	5,029	433,260	8,874	
13	8/29/2017	85	6,952	7,277	5,056	445,078	8,734	
14	8/29/2017	86	7,144	7,840	5,070	444,720	8,786	
15	8/30/2017	75	7,354	8,584	4,775	434,020	11,632	
16	8/30/2017	88	7,342	7,931	5,252	426,040	11,530	
17	8/30/2017	86	7,588	8,270	5,189	447,440	10,360	
18	8/31/2017	85	7,291	7,536	5,013	437,040	8,486	
19	8/31/2017	91	7,360	7,705	5,196	442,520	8,618	
20	8/31/2017	91	7,176	7,374	5,128	441,120	9,232	
21	9/1/2017	86	7,047	7,339	4,765	436,080	8,636	
22	9/1/2017	91	7,155	7,406	5,366	439,600	8,972	
23	9/1/2017	90	7,174	7,482	5,203	431,160	8,492	
24	9/2/2017	87	7,227	7,666	4,850	435,110	8,578	
25	9/2/2017	87	7,072	7,386	4,951	436,060	8,410	
26	9/2/2017	92	7,327	8,025	5,246	436,320	8,488	
27	9/3/2017	88	7,724	8,607	4,779	437,400	9,192	
28	9/3/2017	90	7,163	7,364	5,411	437,480	8,516	
29	9/4/2017	90	7,233	7,766	4,987	439,080	9,006	
30	9/4/2017	89	7,548	8,328	4,772	440,080	11,840	
31	9/5/2017	90	7,195	7,544	5,318	434,800	8,554	
32	9/5/2017	90	7,213	7,516	5,288	433,200	8,406	
33	9/6/2017	90	7,104	7,453	5,089	377,160	8,536	
34	9/7/2017	81	6,611	6,818	5,266	441,600	8,394	
35	9/7/2017	88	7,405	7,768	4,771	433,880	8,832	
36	9/8/2017	90	7,133	7,501	6,007	433,000	8,284	
37	9/8/2017	90	7,262	7,535	4,773	437,420	8,432	
38	9/10/2017	86	6,841	7,008	5,277	436,240	8,680	
39	9/10/2017	87	7,122	7,423	5,127	439,240	8,416	
40	9/10/2017	90	7,205	7,773	5,516	431,120	8,338	
41	9/10/2017	91	7,265	7,681	5,458	430,640	8,344	
42	9/11/2017	91	7,233	7,503	5,096	434,180	8,382	
43	9/11/2017	86	7,021	7,320	5,158	435,440	8,264	
44	9/12/2017	86	7,538	8,568	5,217	435,860	9,878	
45	9/13/2017	86	7,049	7,512	5,391	430,790	8,494	
46	9/14/2017	78	8,088	9,649	5,541	434,760	10,110	
47	9/14/2017	85	6,875	7,238	5,162	436,920	8,142	
48	9/15/2017	87	7,138	9,885	5,185	368,360	8,520	
49	9/15/2017	77	7,945	8,981	5,172	435,380	8,692	
50	9/16/2017	78	7,946	9,003	5,059	333,600	7,974	
51	9/16/2017	73	7,455	9,103	4,614	433,240	8,114	

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Well Name:

DEBORAH CRAIG OHI 5H

47069002150000

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	N.A.	N.A.	560.00	560.00	
Top of Salt Water	812	812	N.A.	N.A.	
Pittsburgh Coal	687	687	690	690	
Big Injun (ss)	1940	1940	2054	2054	
Berea (siltstone)	2404	2404	2447.00	2447.00	
Rhinestreet (shale)	6022.00	5921	6334	6193	
Cashaqua (shale)	6334	6193	6438	6268	
Middlesex (shale)	6438	6268	6570	6349	
Burket (shale)	6570	6349	6613	6371	
Tully (ls)	6613	6371	6694	6409	
Mahantango (shale)	6694	6409	7022	6511	
Marcellus (shale)	7120.00	6526.00	N.A.	N.A.	GAS

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/25/2017
Job End Date:	9/17/2017
State:	West Virginia
County:	Ohio
API Number:	47-069-00215-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Deborah Craig OHI 5H
Latitude:	40.04783900
Longitude:	-80.58457600
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,535
Total Base Water Volume (gal):	9,422,340
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
Water	Southwestern Energy	Carrier/Base Fluid	Water	7732-18-5	100.00000	86.11327	
Sand	J.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	12.06226	
HCL Acid (3% to 7.5%)	J.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	97.00000	0.87677	
			Hydrogen Chloride	7647-01-0	7.50000	0.07872	
Deeprop 1000	J.S. Well Services, LLC	Fluid Loss Additive	Ceramic Microspheres	66402-68-4	65.00000	0.42429	
			Glutaraldehyde	111-30-8	1.00000	0.00455	
HCL Acid (12.6%-17.5%)	J.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.40000	0.29943	
			Hydrogen Chloride	7647-01-0	17.50000	0.06962	
WFRAL2000	J.S. Well Services, LLC	Friction Reducer	Water	7732-18-5	60.00000	0.01595	

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			2-Propenoic acid, polymer with 2-propenamide	9003-06-9	30.00000	0.00798
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.00654
WFRA-1000	J.S. Well Services, LLC	Friction Reducer				
			2-Propenoic acid, polymer with 2-propenamide	9003-06-9	30.00000	0.01433
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01175
BIOC11139A	Nalco Champion	Anti-Bacterial Agent				
			Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride	68424-85-1	30.00000	0.00629
			Glutaraldehyde	111-30-8	10.00000	0.00210
			Ethanol	64-17-5	5.00000	0.00082
SCAL16486A	Nalco Champion	Scale Inhibitor				
			Ethylene Glycol	107-21-1	30.00000	0.00181
			Amine Triphosphate	Proprietary	30.00000	0.00162
WFRA 2500	J.S. Well Services, LLC	Friction Reducer				
			Petroleum naphtha	64742-47-8	30.00000	0.00102
			Quaternary ammonium compound	Proprietary	5.00000	0.00021
AI-303	J.S. Well Services, LLC	Acid Corrosion Inhibitors				
			Ethylene glycol	107-21-1	40.00000	0.00022
			Cinnamaldehyde	104-55-2	20.00000	0.00008
			Formic acid	64-18-6	20.00000	0.00008
			Butyl cellosolve	111-76-2	20.00000	0.00007
			Polyether	60828-78-6	10.00000	0.00004
			Acetophenone, thiourea, formaldehyde polymer	68527-49-1	5.00000	0.00002
OPTI-FLEX	J.S. Well Services, LLC	Friction Reducer				
			Trade Secret	Proprietary	50.00000	0.00009
			Distillates, petroleum, hydrotreated light	64742-47-8	50.00000	0.00007

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or 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)

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Latitude: 40°05'00" SURFACE HOLE 348

Latitude: 40°05'00" BOTTOM HOLE 2739

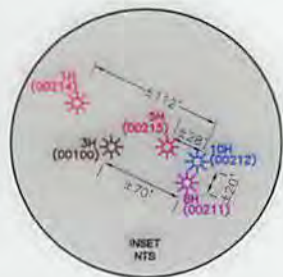
JACKSON SURVEYING INC.

P.O. Box 1460
677 W. Main St.
Clarksburg, WV 26302
304-623-5851

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,433,149.603 EASTING: 535,435.788
LANDING POINT (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,433,657.672 EASTING: 535,503.429
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,435,073.112 EASTING: 534,698.042

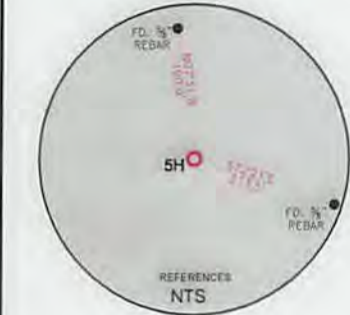
GRID NORTH
UTM, NAD83 DATUM, ZONE 17, US FT

WELL BORE TABLE FOR SURFACE / ROYALTY OWNERS			
TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	DEBORAH ANN CRAIG & SETH COLLIN CRAIG (S/R)	06-T13-16	85.045
2	DEBORAH ANN CRAIG & SETH COLLIN CRAIG (S)	06-T8-50	1.924
3	CRAIG KENNETH BRYAN (S)	06-T8-53.2	2.00
4	JONATHAN P. DUGGAN & JAMES DUGGAN (S)	06-T8-46	68.98
5	OHIO COUNTY DEVELOPMENT AUTHORITY (S)	06-T8-46.12	1.21
6	BETH ANN MARTIN, CAROLINE LOUISE BOYD, JENNIFER LEE BOYD, THELMA JANECE BOYD, COLLEEN MARIE SOEHNLEIN, JAMES C. BOYD III, COUSIN'S ROYALTY, INC., OHIO COUNTY DEVELOPMENT AUTHORITY, JONATHAN P. DUGGAN & JAMES DUGGAN (S)	1-70	45.436
7	BETH ANN MARTIN, CAROLYN LOUISE BOYD, JENNIFER LEE BOYD, THELMA JANECE BOYD, COLLEEN MARIE SOEHNLEIN & JAMES C. BOYD III (S)	06-T8-44	4.01
8	OHIO COUNTY DEVELOPMENT AUTHORITY (S)	06-T8-39.10	9.079
9	OHIO COUNTY DEVELOPMENT AUTHORITY (S)	06-T8-39.9	1.198



LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 12°36'09" W	3029.30'	SHL TO LANDMARK	SPIKE FOUND
L2	S 78°58'14" E	1129.71'	SHL TO LANDMARK	FENCE POST FOUND

LINE	BEARING	DISTANCE	CURVE LENGTH	DESCRIPTION
L3	N 07°16'29" E	1713.63'	1776.00'	SHL TO LP



SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,433,149.649 EASTING: 535,435.751
LANDING POINT (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,433,657.761 EASTING: 535,501.889
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,435,072.654 EASTING: 534,698.109

WELL RESTRICTIONS

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

NOTES ON SURVEY

- SURFACE AND ROYALTY OWNER INFORMATION AND THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND/OR FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- ALL INSETS ARE GRID NORTH UNLESS OTHERWISE DEPICTED.

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

P.S. 708 *David L Jackson*





<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	<p>MINIMUM DEGREE OF ACCURACY: 1/200</p> <p>PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)</p>	<p>COMPANY: SWN Production Company, LLC</p> <p>DEBORAH CRAIG OHI</p> <p>OPERATOR'S WELL #: 5H</p> <p>API WELL #: 47 STATE 069 COUNTY 00215 PERMIT</p>
	<p>WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input checked="" type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/></p> <p>WATERSHED: TANYARD RUN OF MIDDLE WHEELING CREEK ELEVATION: 1329.3'</p> <p>DISTRICT: TRIADELPHIA COUNTY: OHIO QUADRANGLE: VALLEY GROVE, WV</p> <p>SURFACE OWNER: DEBORAH ANN CRAIG & SETH COLLIN CRAIG ACREAGE: ±85.045</p> <p>OIL & GAS ROYALTY OWNER: DEBORAH ANN CRAIG & SETH COLLIN CRAIG ACREAGE: ±85.045</p> <p>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"/></p> <p>CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE <input checked="" type="checkbox"/> (SPECIFY) ASDRILLED</p> <p>TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,535 FT</p>	<p>WELL OPERATOR: SWN PRODUCTION COMPANY, LLC</p> <p>ADDRESS: P.O. BOX 1300</p> <p>CITY: JANE LEW STATE: WV ZIP CODE: 26378</p> <p>DESIGNATED AGENT: DEE SOUTHALL</p> <p>ADDRESS: P.O. BOX 1300</p> <p>CITY: JANE LEW STATE: WV ZIP CODE: 26378</p>
<p>LEGEND:</p> <ul style="list-style-type: none"> ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ⊗ EXISTING / PRODUCING WELLHEAD LPL * LANDING POINT LOCATION ⊕ EXISTING WATER WELL ⊕ EXISTING SPRING — SURVEYED BOUNDARY — DRILLING UNIT — LEASE BOUNDARY — ASDRILLED PATH — PROPOSED PATH 	<p>REVISIONS:</p> <p>DATE: 09-08-2017</p> <p>DRAWN BY: N. MANO</p> <p>SCALE: 1" = 2000'</p> <p>DRAWING NO:</p> <p>WELL LOCATION PLAT</p>	

JACKSON SURVEYING
 INC.
 P.O. Box 1460
 677 W. Main St.
 Clarksburg, WV 26302
 304-623-5851

ADJOINING OWNERS TABLE			
TRACT	SURFACE OWNER	TAX PARCEL	ACRES
A	OHIO COUNTY DEVELOPMENT AUTHORITY	06-18-46.8	1.402
B	OHIO COUNTY DEVELOPMENT AUTHORITY	06-18-46.19	0.33
C	OHIO COUNTY DEVELOPMENT AUTHORITY	06-18-39.5	1.4452
D	OHIO COUNTY DEVELOPMENT AUTHORITY	06-18-39.3	0.93
E	OHIO COUNTY DEVELOPMENT AUTHORITY	06-18-39.6	0.85
F	OHIO COUNTY DEVELOPMENT AUTHORITY	06-18-39.1	1.31
G	OHIO COUNTY DEVELOPMENT AUTHORITY	06-18-39.2	1.54
H	OHIO COUNTY DEVELOPMENT AUTHORITY	06-18-39	1.0842
I	KG DEVELOPMENT LLC	06-18-39.4	0.9812
J	KG DEVELOPMENT LLC	06-18-39.7	0.8514
K	OMNIVIA INC.	06-18-39.8	0.8574
L	WHEELING POWER COMPANY C/O AEP	06-18-27.12	3.176
M	COUSINS REALTY, INC.	06-18-27.4	0.464
N	OHIO COUNTY DEVELOPMENT AUTHORITY	06-18-45.6	3.07
O	OHIO COUNTY DEVELOPMENT AUTHORITY	06-18-45.3	4.433
P	JONATHAN P. DUGGAN & JAMES DUGGAN	06-18-46.21	0.99
Q	QUADRANT 11, LLC	06-18-69	0.321
R	QUADRANT 11, LLC	06-18-46.16	2.32
S	HOLIDAY INN EXPRESS WHEELING HOSPITALITY	06-18-46.17	2.42
T	JOHN DUGGAN & ANN DUGGAN	06-18-46.24	0.125
U	JOHN DUGGAN & ANN DUGGAN	06-18-46.20	0.39
V	JOHN DUGGAN & ANN DUGGAN	06-18-46.22	0.72
W	BEVERLY E. KNIERIM	06-18-46.3	1.00
X	BEVERLY E. KNIERIM	06-18-47.8	1.00
Y	DONNA L. CROW	06-18-46.5	0.50
Z	WILLIAM A. CROW	06-18-47.3	1.0348
AA	JAMES P. RICHMOND & D.L. RICHMOND	06-18-47.4	1.0003
BB	JEFFREY A. FOSTER	06-18-47.5	0.6774
CC	LOUIS A. SELLER & B.M. SELLER	06-18-47.7	0.15
DD	LOUIS A. SELLER & B.M. SELLER	06-18-53.3	1.00
EE	CHARLES H. FRYE & D.V. FRYE	06-18-48	0.468
FF	DEBORAH ANN CRAIG & SETH C. CRAIG	06-18-52	0.94

03/02/2018

REVISIONS:	COMPANY:	 	
	OPERATOR'S	DEBORAH CRAIG OHI	
	WELL #:	5H	
	DISTRICT:	COUNTY:	STATE:
	TRIADELPHIA	OHIO	WV
			DATE: 09-08-2017
			DRAWN BY: N. MANO
			SCALE: N/A
			DRAWING NO:
			WELL LOCATION PLAT 2