

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

API 47 - 069 - 00196 County OHIO District TRIADELPHIA  
Quad VALLEY GROVE WV Pad Name G W RENTALS LLC-OHI-PAD1 Field/Pool Name PANHANDLE FIELD  
Farm name G W RENTLAS LLC OHI 405 Well Number G W RENTALS LLC OHI 405  
Operator (as registered with the OOG) SWN Production Company LLC  
Address P O 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 4,436,098.288 Easting 537,039.075  
Landing Point of Curve Northing 4,436,440.514 Easting 537,434.277  
Bottom Hole Northing 4,438,473.536 Easting 536,635.328

Elevation (ft) 1246.7' 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 09/22/15 Date drilling commenced 10/03/15 Date drilling ceased 12/08/15  
Date completion activities began 09/20/16 Date completion activities ceased 11/10/16  
Verbal plugging (Y/N) N Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

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

Freshwater depth(s) ft 510' MD Open mine(s) (Y/N) depths N  
Salt water depth(s) ft 1328' MD Void(s) encountered (Y/N) depths 606' - 629'  
Coal depth(s) ft 608' MD Cavern(s) encountered (Y/N) depths N

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**APPROVED**

NAME: Eric Bled  
DATE: 3/29/17

Reviewed by:  
as 3/29/17  
**05/26/2017**

API 47-069 - 00196 Farm name G W RENTLAS LLC OHI 405 Well number G W RENTALS LLC OHI 405

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	28"	20"	126	NEW	J-55/94#		Y; 1BBL RETURNED
Surface	17.5"	13.375"	662	NEW	J-55/54.5#	584' / 604'	Y
Coal	SEE SURFACE						
Intermediate 1	12.25"	9.625"	2100	NEW	J-55/40#		Y; 7 BBLs RETURNED
Intermediate 2							
Intermediate 3							
Production	8.75"/8.5"	5.5"	14521	NEW	HCP-110/20#		Y
Tubing		2.375"	7171	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 <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	CLASS A	150	17.2			SURFACE	24
Surface	CLASS A	613	15.6	1.20	735.6	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	785	15.6	1.18	926.3	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	970/1602	13.5/15.6	1.23/1.19	1193.1/1906.38	SURFACE	24
Tubing							

Drillers TD (ft) 14,397'      Loggers TD (ft) 14,397'  
 Deepest formation penetrated MARCELLUS      Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6,143

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

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

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

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





G W RENTALS LLC OHI 405H  
Perf Stage Summary

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	9/21/2016	14,385	14,463	42
2	9/21/2016	14,284	14,362	42
3	9/21/2016	14,183	14,261	42
4	9/21/2016	14,082	14,160	42
5	9/21/2016	13,981	14,059	42
6	9/22/2016	13,880	13,958	42
7	9/22/2016	13,779	13,857	42
8	9/22/2016	13,678	13,756	42
9	9/22/2016	13,577	13,655	42
10	9/23/2016	13,476	13,554	42
11	9/23/2016	13,375	13,453	42
12	9/23/2016	13,274	13,352	42
13	9/23/2016	13,173	13,251	42
14	9/23/2016	13,072	13,150	42
15	9/24/2016	12,971	13,049	42
16	9/24/2016	12,870	12,948	42
17	9/24/2016	12,769	12,847	42
18	9/24/2016	12,668	12,740	42
19	9/25/2016	12,567	12,645	42
20	9/25/2016	12,466	12,544	42
21	9/25/2016	12,365	12,443	42
22	9/25/2016	12,264	12,342	42
23	9/25/2016	12,163	12,241	42
24	9/25/2016	12,062	12,140	42
25	9/26/2016	11,961	12,039	42
26	9/26/2016	11,860	11,938	42
27	9/26/2016	11,759	11,837	42
28	9/26/2016	11,658	11,736	42
29	9/26/2016	11,557	11,635	42
30	9/27/2016	11,456	11,534	42
31	9/27/2016	11,355	11,433	42
32	9/27/2016	11,254	11,332	42
33	9/27/2016	11,153	11,231	42
34	9/27/2016	11,052	11,130	42
35	9/28/2016	10,951	11,029	42
36	9/28/2016	10,850	10,928	42
37	9/28/2016	10,749	10,827	42
38	9/28/2016	10,648	10,723	42
39	9/29/2016	10,547	10,625	42
40	9/29/2016	10,446	10,524	42
41	9/29/2016	10,345	10,423	42
42	9/30/2016	10,244	10,322	42
43	9/30/2016	10,143	10,216	42
44	10/1/2016	10,042	10,120	42
45	10/1/2016	9,941	10,019	42
46	10/1/2016	9,840	9,912	42
47	10/2/2016	9,739	9,817	42
48	10/2/2016	9,640	9,716	42
49	10/2/2016	9,537	9,615	42
50	10/2/2016	9,436	9,508	42
51	10/2/2016	9,335	9,413	42
52	10/3/2016	9,234	9,312	42
53	10/3/2016	9,133	9,211	42
54	10/3/2016	9,032	9,110	42
55	10/3/2016	8,931	9,009	42
56	10/3/2016	8,830	8,908	42
57	10/4/2016	8,729	8,807	42
58	10/5/2016	8,628	8,706	42
59	10/5/2016	8,527	8,598	42
60	10/5/2016	8,426	8,497	42
61	10/5/2016	8,325	8,403	42
62	10/5/2016	8,224	8,296	42
63	10/6/2016	8,124	8,196	42
64	10/6/2016	8,022	8,093	42
65	10/6/2016	7,921	7,992	42
66	10/6/2016	7,820	7,892	42
67	10/7/2016	7,719	7,791	42
68	10/7/2016	7,614	7,690	42
69	10/7/2016	7,517	7,589	42
70	10/7/2016	7,420	7,488	42
71	10/8/2016	7,315	7,387	42
72	10/8/2016	7,214	7,292	42

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G W RENTALS LLC OHI 405H  
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	9/21/2016	92	7,609	8,026	4,187	501,020	7,808	
2	9/21/2016	91	7,723	8,287	4,300	500,520	9,941	
3	9/21/2016	94	7,884	8,534	5,074	502,500	8,224	
4	9/21/2016	95	7,707	8,193	5,002	500,360	7,716	
5	9/21/2016	90	7,720	8,462	4,952	501,560	7,972	
6	9/22/2016	96	7,857	8,687	4,933	501,980	8,229	
7	9/22/2016	95	7,849	8,330	4,874	501,600	8,308	
8	9/22/2016	95	7,910	8,628	5,037	505,500	8,065	
9	9/22/2016	93	7,876	8,684	4,995	503,460	7,802	
10	9/23/2016	94	7,974	8,236	5,036	502,680	7,622	
11	9/23/2016	95	7,864	8,976	5,106	500,600	7,906	
12	9/23/2016	98	7,749	8,903	5,033	507,940	8,180	
13	9/23/2016	100	7,959	8,320	4,927	499,700	7,813	
14	9/23/2016	99	7,856	8,862	5,007	504,540	7,727	
15	9/24/2016	95	7,756	8,447	5,051	503,500	7,723	
16	9/24/2016	99	7,727	8,008	4,868	504,860	7,854	
17	9/24/2016	100	7,899	8,479	4,775	500,120	7,398	
18	9/24/2016	99	7,598	8,376	4,772	500,360	7,650	
19	9/25/2016	100	7,622	8,398	4,718	501,920	7,489	
20	9/25/2016	102	7,679	8,785	4,844	496,920	7,522	
21	9/25/2016	102	7,898	8,504	4,773	498,860	7,234	
22	9/25/2016	100	7,735	8,499	4,828	499,680	7,318	
23	9/25/2016	100	7,646	8,196	4,874	499,340	7,364	
24	9/25/2016	100	7,646	8,336	4,712	503,060	7,382	
25	9/26/2016	100	7,534	7,920	4,683	502,340	7,260	
26	9/26/2016	100	7,458	8,479	4,608	503,460	8,216	
27	9/26/2016	101	7,573	8,419	4,676	498,320	7,513	
28	9/26/2016	99	7,668	8,198	4,495	499,380	7,160	
29	9/26/2016	98	7,637	8,388	4,567	499,760	7,264	
30	9/27/2016	100	7,767	8,428	4,658	499,980	7,152	
31	9/27/2016	101	7,480	8,516	4,753	501,380	8,372	
32	9/27/2016	101	7,513	8,687	4,649	501,740	7,468	
33	9/27/2016	100	7,538	8,367	4,799	500,400	7,176	
34	9/27/2016	100	7,526	8,342	4,714	500,160	7,082	
35	9/28/2016	101	7,510	7,947	4,739	502,380	7,505	
36	9/28/2016	100	7,455	8,507	4,740	506,020	9,095	
37	9/28/2016	98	7,367	7,773	5,046	500,060	7,781	
38	9/28/2016	99	7,575	8,347	5,021	500,060	7,736	
39	9/29/2016	100	7,288	8,360	4,779	500,080	8,382	
40	9/29/2016	100	7,413	7,805	4,909	500,800	7,534	
41	9/29/2016	100	7,440	8,721	4,651	499,100	8,027	
42	9/30/2016	99	7,447	8,195	4,930	500,320	8,980	
43	9/30/2016	99	7,544	8,505	5,043	500,040	8,974	
44	10/1/2016	100	7,467	8,507	4,906	504,640	7,844	
45	10/1/2016	100	7,709	8,357	4,988	500,020	7,745	
46	10/1/2016	101	7,487	8,343	4,855	500,060	7,591	
47	10/2/2016	99	7,420	8,372	4,775	499,820	7,661	
48	10/2/2016	100	7,552	8,125	4,937	503,300	7,507	
49	10/2/2016	100	7,650	8,010	5,055	501,320	7,217	
50	10/2/2016	100	7,386	8,036	4,949	501,180	7,504	
51	10/2/2016	99	7,532	8,470	5,193	502,060	7,842	
52	10/3/2016	100	7,297	7,926	5,270	502,140	7,443	
53	10/3/2016	97	7,361	7,816	5,232	502,180	7,204	
54	10/3/2016	100	7,565	10,153	5,416	454,880	7,251	
55	10/3/2016	100	7,277	7,791	4,802	499,320	7,712	
56	10/3/2016	100	6,969	7,376	4,932	501,840	7,420	
57	10/4/2016	100	7,230	8,143	5,125	503,660	7,559	
58	10/5/2016	100	7,326	8,004	4,983	499,320	7,347	
59	10/5/2016	100	7,284	8,634	4,915	501,360	7,045	
60	10/5/2016	99	7,666	8,133	4,734	500,560	7,134	
61	10/5/2016	100	7,103	8,145	4,840	500,020	7,414	
62	10/5/2016	99	7,230	8,244	4,870	499,740	7,357	
63	10/6/2016	100	7,175	8,406	5,058	498,240	7,291	
64	10/6/2016	98	7,429	8,730	5,088	500,040	7,273	
65	10/6/2016	96	7,624	8,682	5,283	499,920	7,120	
66	10/6/2016	99	6,983	7,659	4,679	500,040	7,421	
67	10/7/2016	98	7,254	7,627	4,988	499,600	7,120	
68	10/7/2016	98	7,263	7,864	5,023	499,520	6,950	
69	10/7/2016	99	7,294	8,665	4,964	500,140	7,239	
70	10/7/2016	95	7,046	7,836	5,181	500,080	7,170	
71	10/8/2016	95	7,034	8,136	4,987	478,050	7,005	
72	10/8/2016	99	7,062	7,689	5,178	491,630	7,004	

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**Well Name: G W RENTALS LLC OHI 405H**

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.	510.00	510.00	?
Top of Salt Water	1328.00	1328.00	N. A.	N. A.	?
Pittsburgh Coal	608.00	608.00	619.00	619.00	?
Big Injun (ss)	2031.00	2031.00	1857.00	1857.00	?
Berea (siltstone)	2387.00	2381.00	2432.00	2425.00	?
Rhinstreet (shale)	6125.00	5892.00	6437.23	6177.09	?
Cashaqua (shale)	6437.23	6177.09	6531.49	6253.58	?
Middlesex (shale)	6531.49	6253.58	6643.88	6333.75	?
Burket (shale)	6643.88	6333.75	6680.88	6358.45	?
Tully (ls)	6680.88	6358.45	6730.64	6389.69	?
Mahantango (shale)	6730.64	6389.69	7096.49	6525.32	?
Marcellus (shale)	7096.49	6525.32	N. A.	N. A.	?

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/21/2016
Job End Date:	10/8/2016
State:	West Virginia
County:	Ohio
API Number:	47-069-00196-08-00
Operator Name:	Southwestern Energy
Well Name and Number:	GW Rentals OH1 405H
Latitude:	40.07430000
Longitude:	-80.56563000
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,534
Total Base Water Volume (gal):	22,846,955
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
Lease Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	83.10705	Density = 8.410
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	1.22326	





HAI-150E	Halliburton	Corrosion Inhibitor		Listed Below				
HYDROCHLORI C ACID	Halliburton	Solvent		Listed Below				
SAND- PREMIUM WHITE-40/70, BULK	Halliburton	Proppant		Listed Below				
FDP-S1176-15	Halliburton	Friction Reducer		Listed Below				
EC6486A	Nalco	Scale Inhibitor		Listed Below				
Bactron K-139	Nalco	Biocide		Listed Below				
SAND-COMMON WHITE - 100 MESH, 3307 LB BAG	Halliburton	Proppant		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	15.57235		
			Hydrochloric acid	7647-01-0	15.00000	0.73396		
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01809		



WR-36  
Rev. 5/08

Date: 01/31/2017  
Operators Well Number: G W RENTALS LLC OHI 405H  
API Well No: 47-069 - 00196

**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  
Address PO BOX 12359  
SPRING, TX 77391-2359

Designated Agent \_\_\_\_\_  
Address \_\_\_\_\_

Geological Target Formation: MARCELLUS Depth 7096.49 feet  
Perforation Interval 7214' - 14463' 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	Time	End of Test Date	Time	Duration of Test
Tubing Pressure	Casing Pressure	Separator Pressure	Separator Temperature	
Oil Production During Test	Gas Production During Test	Water Production During Test		
BBLS	MCF	BBls	-Salinity	
Oil Gravity	Producing Method (flowing, pumping, gas lift etc.)			
API				

**GAS PRODUCTION**

Measurement Method Flange Tap <input type="checkbox"/> Pipe Tap <input type="checkbox"/> L-10 <input type="checkbox"/>		Positive Choke <input type="checkbox"/>
		Positive flow prover <input type="checkbox"/>
Orifice diameter	Pipe Diameter (inside)	Nominal Choke Size inches <b>16"</b>
Differential Pressure range	Max. Static pressure range	Prover and Orifice diameter - inches
Differential		Static
Gas Gravity (Air = 1.0)	Flowing Temperature	Gas Temperature
Measured	Estimated	
24 Hour Coefficient	24 Hour coefficient pressure PSIA	

**TEST RESULTS**

Daily Oil <b>189.94 Bbls</b>	Daily Water <b>419.82 Bbls</b>	Daily Gas <b>1932.835 Mcf</b>	Gas-Oil Ratio
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*Denise Grantham*  
Well Operator

BY DENISE GRANTHAM

ITS: DESIGNATED REPRESENTATIVE

**05/26/2017**



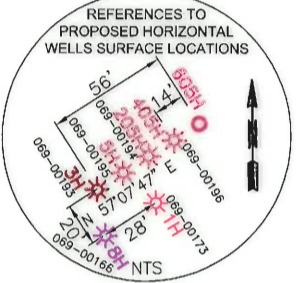
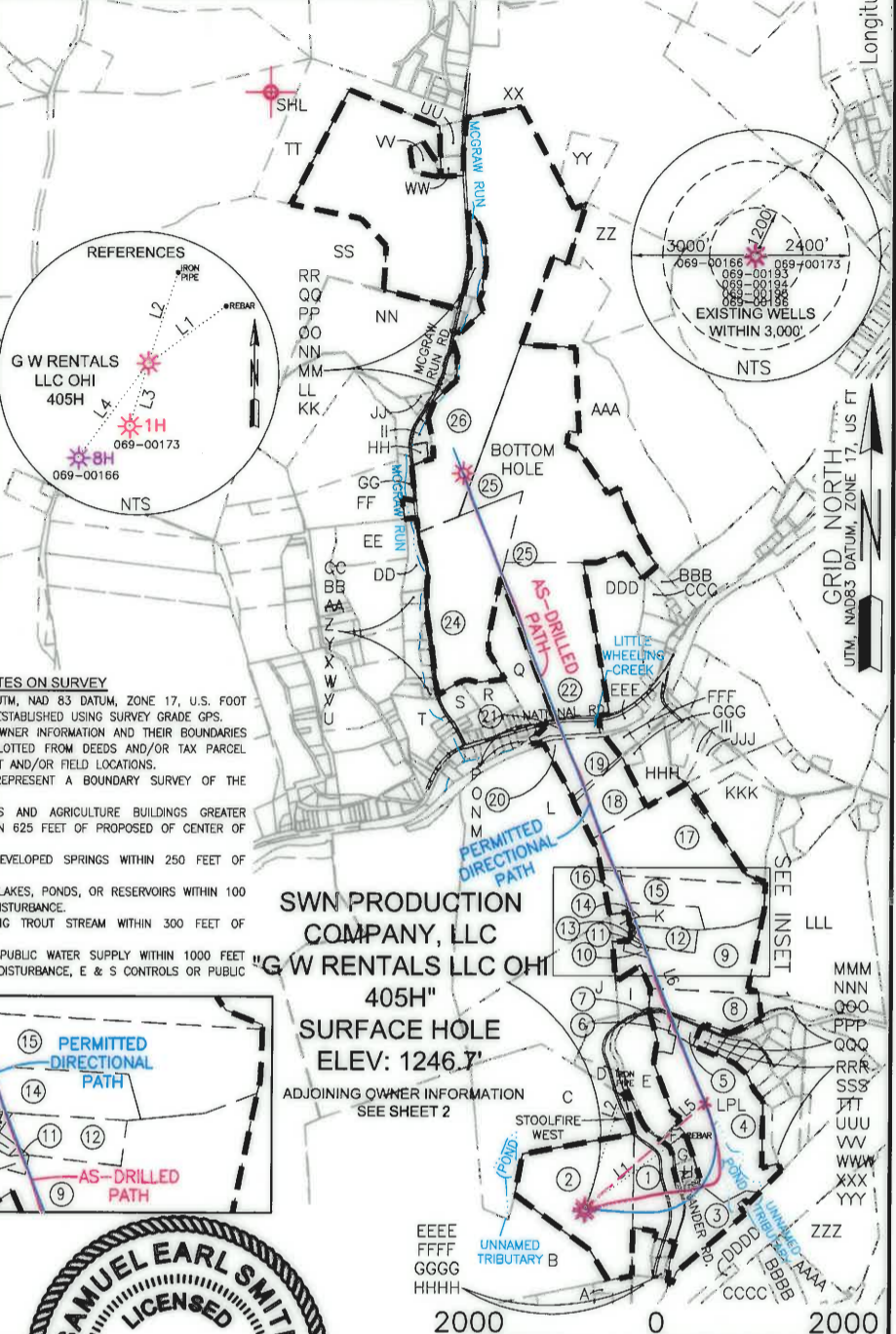
320 O'Bryan Lane • Van Buren, AR 72956  
Office: 479.474.7916 • Fax: 479.474.2450  
Surveying • handa-inc.com

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 53°34'38" E	1295.89'	SHL TO LANDMARK	5/8" REBAR SET
L2	N 18°14'13" E	1278.77'	SHL TO LANDMARK	1" IRON PIPE
L3	S 16°48'35" W	29.88'	SHL TO REF. PNT.	G W RENTALS LLC OHI 1H WELL HEAD 069-00173
L4	S 35°31'18" W	55.40'	SHL TO REF. PNT.	G W RENTALS LLC OHI 8H WELL HEAD 069-00166
LINE	BEARING	DISTANCE	CURVE LENGTH	DESCRIPTION
L5	N 49°02'31" E	1700.85'		SHL TO LP
L6	N 21°27'15" W	7166.58'		LP TO BHL

Latitude: 40°05'00"

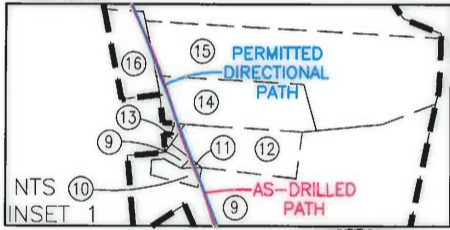
Longitude: 80°32'30"

TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	GW RENTALS, LLC (S)	6-19-5	13.96
2	LEE J. GLESSNER & GARY W. GLESSNER (R) GW RENTALS, LLC (S) LEE J. GLESSNER & GARY W. GLESSNER (R) JAMES Z. CHAMBERS (R) JEFFREY S. CHAMBERS (R) JUDY LYNN CHAMBERS (R)	6-19-5.1	27.66
3	SAMUEL LEE HARRIS SR., TRUSTEE OF THE ROBERT EDWARD LEE HARRIS & SAMUEL LEE HARRIS JR. IRREVOCABLE TRUST (S/R)	6-19-57	9.31
4	JOSEPH M. TEAGARDEN & MARLA M. TEAGARDEN (S) VICTOR A. WOOD & JENNA P. WOOD (R)	6-14-4.30	33.32
5	PAUL J. WINTERS & LINDA A. WINTERS (S/R)	6-14-4.20	1.06
6	PAUL J. WINTERS & LINDA A. WINTERS (S/R)	6-14-4.18	0.45
7	HOWARD A. WALLS III & TERESA L. WALLS (S/R)	6-14-4.24	1.77
8	GW RENTALS, LLC (S/R)	6-14-4	10.68
9	THOMAS DOEPKEN (S/R)	3-14-14	25.00
10	JOHN W. GRAMLICH JR & KATHLEEN M. GRAMLICH (S/R)	3-14-14.11	0.50
11	JOHN W. GRAMLICH JR (S/R)	3-14-14.9	0.21
12	JOHN W. GRAMLICH JR (S/R)	3-14-14.7	3.04
13	WILLIAM E. WARD & LOLLYANNE G. WARD (S/R)	3-14-14.8	0.15
14	LARRY R. LEWIS & WISON LEWIS (S/R)	3-14-14.15	0.71
15	WILLIAM E. WARD & LOLLYANNE G. WARD (S/R)	3-14-14.6	9.74
16	JAMES RICHARD HALL JR. & MELISSA RENEE HALL (S/R)	3-14-14.14	1.99
17	WILLIAM E. WARD & LOLLYANNE WARD (S/R)	3-14-14.4	18.34
18	JAMES E. LAUDERMILT, JR. & ASHLEY L. LAUDERMILT (S) JUDY E. ROMAGNOLI (R)	3-14-4	8.62
19	RICHARD K. DERRROW & ALICIA DERRROW (S/R)	3-14-3	6.74
20	VALLEY GROVE VOLUNTEER FIRE DEPARTMENT, INC. (S/R)	8-VG9-93	14.80
21	MARTHA A. STARKEY (S/R) BARBARA A. JENKS (S/R)	8-VG7-18	1.93
22	LYNN REUSSER & YVONNE REUSSER (S/R)	8-VG7-24.1	25.87
24	WILLIAM S. PATTERSON III & DAWN E. PATTERSON (S/R)	3-14-2.2	32.26
25	LYNN REUSSER & YVONNE REUSSER (S/R)	3-11-20.1	66.28
26	MICHAEL D. VARGO & MELISSA JEAN VARGO (S/R)	3-11-10	131.07



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

<b>SURFACE HOLE LOCATION (SHL)</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,436,098.288 EASTING: 537,039.075
<b>LANDING POINT LOCATION (LPL)</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,436,440.514 EASTING: 537,434.277
<b>BOTTOM HOLE LOCATION (BHL)</b>
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,438,473.536 EASTING: 536,635.328



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. 2315 *Samuel Earl Smith* 07-27-16

COMPANY: **SWN** Production Company, LLC

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS	MINIMUM DEGREE OF ACCURACY: 1/200	G W RENTALS LLC OHI
WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034	PROVEN SURVEY SOURCE OF GRADE GPS ELEVATION: (NAVD 88, US FT)	OPERATOR'S WELL #: 405H
		API WELL #: 47 69 00196
		STATE COUNTY PERMIT

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

WATERSHED: WHEELING CREEK ELEVATION: 1246.7'

DISTRICT: TRIADELPHIA COUNTY: OHIO QUADRANGLE: VALLEY GROVE WV.

SURFACE OWNER: GW RENTALS, LLC. ACREAGE: ±27.66

OIL & GAS ROYALTY OWNER: LEE J GLESSNER & MARK W GLESSNER, JAMES Z CHAMBERS, JEFFREY S CHAMBERS, & JUDY LYNN CHAMBERS ACREAGE: ±27.66

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 DEPTH: 6,540' TVD 14,525' TMD

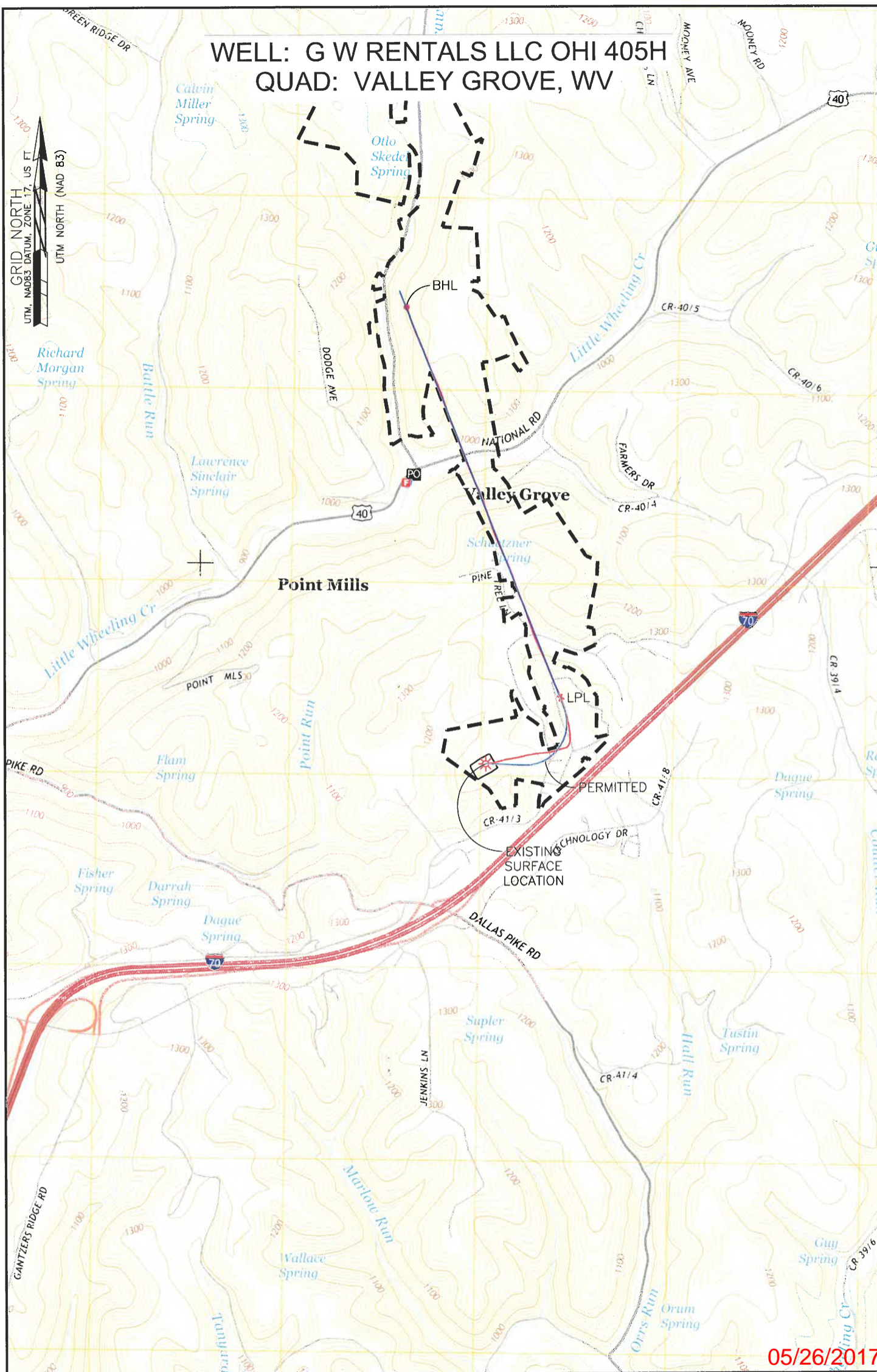
WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: DEE SOUTHALL

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

LEGEND:	<ul style="list-style-type: none"> <li>○ PROPOSED SURFACE HOLE / BOTTOM HOLE</li> <li>⊗ EXISTING / PRODUCING WELLHEAD</li> <li>⊗ ABANDONED WELL</li> <li>⊗ PLUGGED &amp; ABANDONED WELL</li> <li>△ CUT CONDUCTOR</li> <li>--- LEASE BOUNDARY</li> <li>--- AS-DRILLED PATH</li> <li>--- PERMITTED DIRECTIONAL PATH</li> </ul>	<ul style="list-style-type: none"> <li>△ REVISED DIRECTIONAL PATH, 08-06-2015</li> <li>△ ADDED ADJACENT PARCELS, 08-14-2015</li> <li>△ ADDED ADJACENT PARCEL OWNERS, TAX MAP</li> <li>△ PARCEL NUMBER, &amp; ACREAGE, 09-10-2015</li> <li>△ UPDATED WITH AS-DRILLED DIRECTIONAL PATH, 12-29-2015</li> <li>△ UPDATED PER. DIR. PATH, ADD LP COORDS 07-25-2016</li> </ul>	<ul style="list-style-type: none"> <li>DATE: 12-16-2015</li> <li>DRAWN BY: S. HUTSON</li> <li>SCALE: 1" = 2000'</li> <li>DRAWING NO: 59359</li> <li>WELL LOCATION PLAT</li> </ul>
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**WELL: G W RENTALS LLC OHI 405H  
 QUAD: VALLEY GROVE, WV**



NOTE:  
 THE PURPOSE OF THIS PLAT IS FOR THE LOCATION OF PROPOSED GAS  
 WELLS AND DOES NOT REPRESENT A CLOSED BOUNDARY SURVEY.  
 PROPERTY LINE AND OWNERS WERE OBTAINED FROM VARIOUS FIELD  
 EVIDENCE, TAX RECORDS AND AERIAL MAPPING.

**LEGEND**

----- EXTERNAL LEASE LINE

Applicant / Well Operator Name SWN PRODUCTION COMPANY, LLC	Well (Farm) Name G W RENTALS LLC OHI	Well # 405H	Serial #
Address PO BOX 1300, JANE LEW, WV 76378	County - Code OHIO - 69	District TRIADDELPHIA	
Surface Landowner / Lessor G W RENTALS LLC	USGS 7 1/2 Quadrangle Map Name VALLEY GROVE, WV		



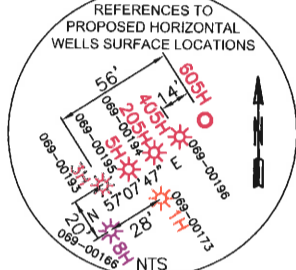
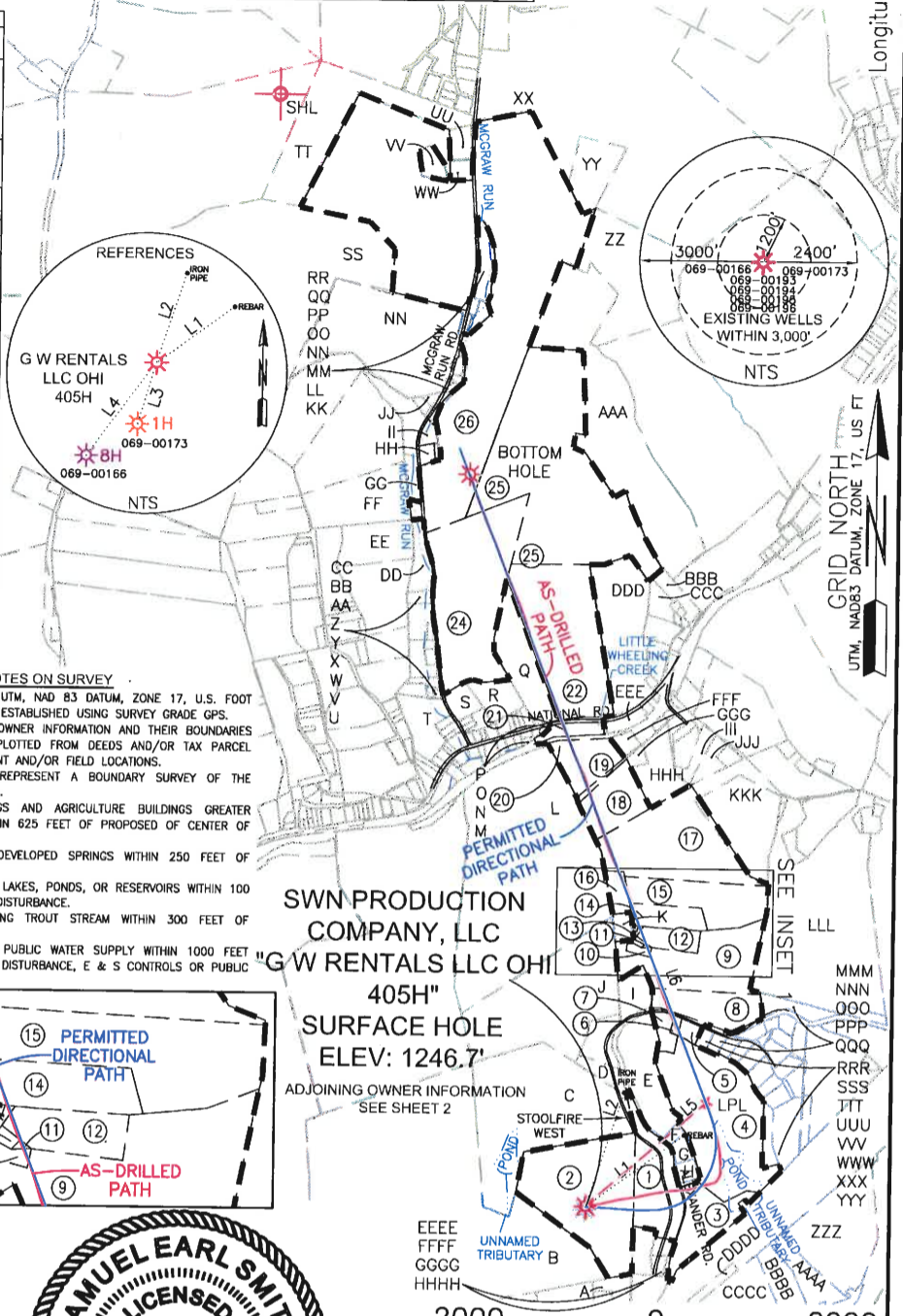
320 O'Bryan Lane • Van Buren, AR 72956  
Office: 479.474.7916 • Fax: 479.474.2450  
Surveying • handa-inc.com

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 53°34'38" E	1295.89'	SHL TO LANDMARK	5/8" REBAR SET
L2	N 18°14'13" E	1278.77'	SHL TO LANDMARK	1" IRON PIPE
L3	S 16°48'35" W	29.88'	SHL TO REF. PNT.	G W RENTALS LLC OHI 1H WELL HEAD 069-00173
L4	S 35°31'18" W	55.40'	SHL TO REF. PNT.	G W RENTALS LLC OHI 8H WELL HEAD 069-00166
LINE	BEARING	DISTANCE	CURVE LENGTH	DESCRIPTION
L5	N 49°02'31" E	1700.85'		SHL TO LP
L6	N 21°27'15" W	7166.58'		LP TO BHL

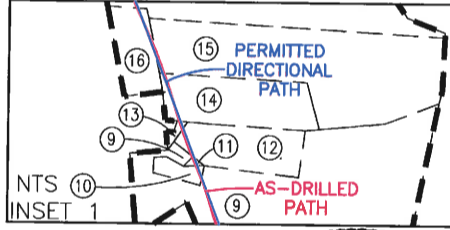
Latitude: 40°05'00"

Longitude: 80°32'30"

TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	GW RENTALS, LLC (S) LEE J. GLESSNER & GARY W. GLESSNER (R)	6-T9-5	13.96
2	GW RENTALS, LLC (S) LEE J. GLESSNER & GARY W. GLESSNER (R) JAMES Z. CHAMBERS (R) JEFFREY S. CHAMBERS (R) JUDY LYNN CHAMBERS (R)	6-T9-5.1	27.66
3	SAMUEL LEE HARRIS SR., TRUSTEE OF THE ROBERT EDWARD LEE HARRIS & SAMUEL LEE HARRIS JR. IRREVOCABLE TRUST (S/R)	6-T9-57	9.31
4	JOSEPH M. TEAGARDEN & MARLA M. TEAGARDEN (S) VICTOR A. WOOD & JENNA P. WOOD (R)	6-T4-4.30	33.32
5	PAUL J. WINTERS & LINDA A. WINTERS (S/R)	6-T4-4.20	1.06
6	PAUL J. WINTERS & LINDA A. WINTERS (S/R)	6-T4-4.18	0.45
7	HOWARD A. WALLS III & TERESA L. WALLS (S/R)	6-T4-4.24	1.77
8	GW RENTALS, LLC (S/R)	6-T4-4	10.68
9	THOMAS DOEPKEN (S/R)	3-L14-14	25.00
10	JOHN W. GRAMLICH JR & KATHLEEN M. GRAMLICH (S/R)	3-L14-14.11	0.50
11	JOHN W. GRAMLICH JR (S/R)	3-L14-14.9	0.21
12	JOHN W. GRAMLICH JR (S/R)	3-L14-14.7	3.04
13	WILLIAM E. WARD & LOLLYANNE G. WARD (S/R)	3-L14-14.8	0.15
14	LARRY R. LEWIS & MISON LEWIS (S/R)	3-L14-14.15	0.71
15	WILLIAM E. WARD & LOLLYANNE G. WARD (S/R)	3-L14-14.6	9.74
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18	JAMES E. LAUDERMILT, JR. & ASHLEY L. LAUDERMILT (S) JUDY E. ROMAGNOLI (R)	3-L14-4	8.62
19	RICHARD K. DERROW & ALICIA DERROW (S/R)	3-L14-3	6.74
20	VALLEY GROVE VOLUNTEER FIRE DEPARTMENT, INC. (S/R)	8-VG9-93	14.80
21	MARTHA A. STARKEY (S/R) BARBARA A. JENKS (S/R)	8-VG7-18	1.93
22	LYNN REUSSER & YVONNE REUSSER (S/R)	8-VG7-24.1	25.87
24	WILLIAM S. PATTERSON III & DAWN E. PATTERSON (S/R)	3-L14-2.2	32.26
25	LYNN REUSSER & YVONNE REUSSER (S/R)	3-L11-20.1	66.28
26	MICHAEL D. VARGO & MELISSA JEAN VARGO (S/R)	3-L11-10	131.07



- 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.
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  - NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
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  - NO GROUND INTAKE OR PUBLIC WATER SUPPLY WITHIN 1000 FEET OF WELL PAD, LIMITS OF DISTURBANCE, E & S CONTROLS OR PUBLIC WATER SUPPLY.



<b>SURFACE HOLE LOCATION (SHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,436,098.288 EASTING: 537,039.075
<b>LANDING POINT LOCATION (LPL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,436,440.514 EASTING: 537,434.277
<b>BOTTOM HOLE LOCATION (BHL):</b> UTM (NAD83, ZONE 17, METERS): NORTHING: 4,438,473.536 EASTING: 536,635.328



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P.S. 2315 *Samuel Earl Smith* 07-27-16

(+) 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)

COMPANY: **SWN** Production Company, LLC

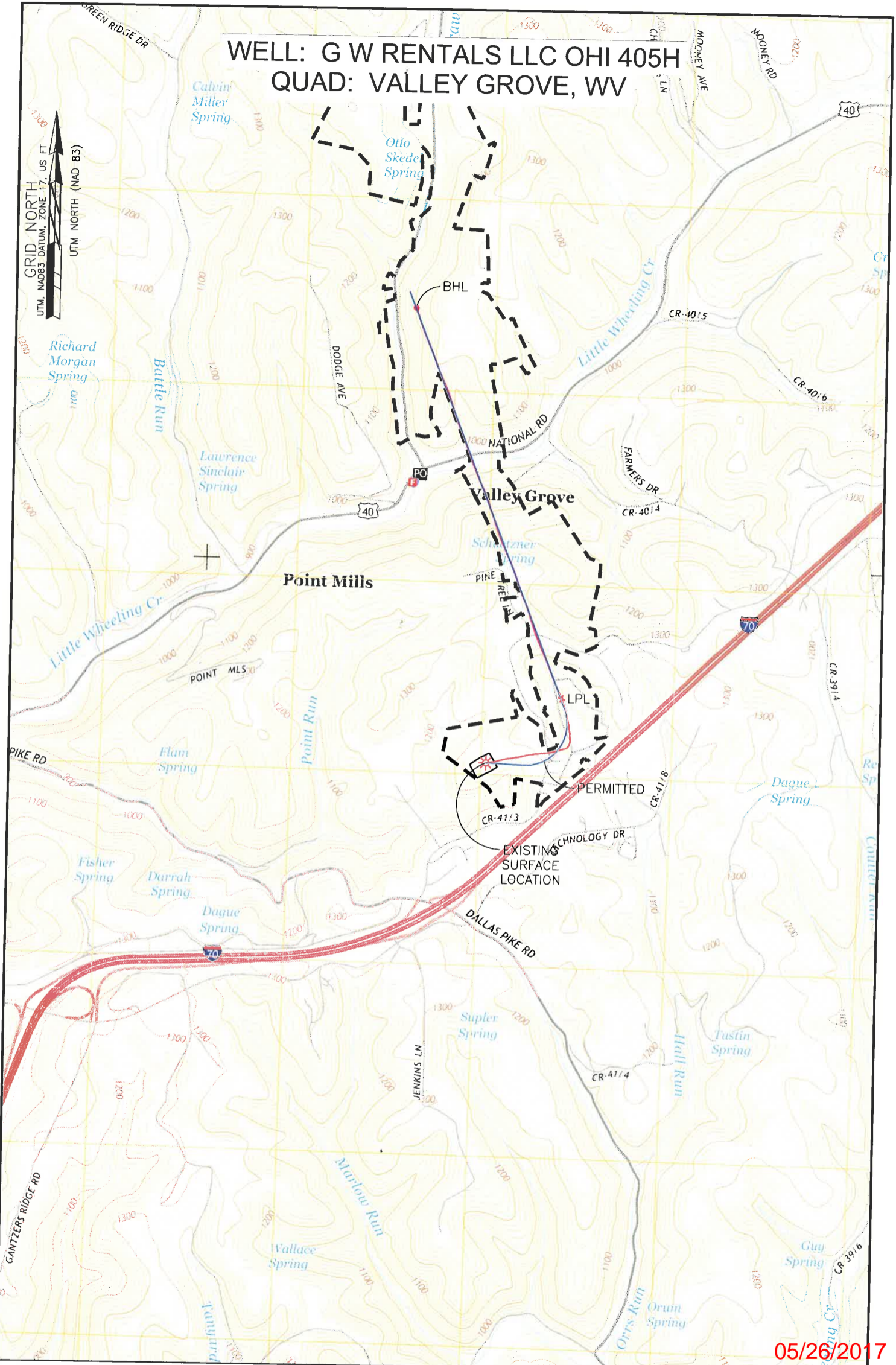
G W RENTALS LLC OHI  
OPERATOR'S WELL #: 405H  
API WELL #: 47 69 00196  
STATE COUNTY PERMIT

WELL TYPE: OIL  WASTE DISPOSAL  PRODUCTION  DEEP  GAS  LIQUID INJECTION  STORAGE  SHALLOW   
WATERSHED: WHEELING CREEK  
DISTRICT: TRIADLPHIA COUNTY: OHIO  
SURFACE OWNER: GW RENTALS, LLC.  
OIL & GAS ROYALTY OWNER: LEE J GLESSNER & MARK W GLESSNER, JAMES Z CHAMBERS, JEFFREY S CHAMBERS, & JUDY LYNN CHAMBERS ACREAGE: ±27.66  
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 DEPTH: 6,540' TVD 14,523' TMD

WELL OPERATOR: SWN PRODUCTION COMPANY, LLC DESIGNATED AGENT: DEE SOUTHALL  
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

LEGEND:	<ul style="list-style-type: none"> <li>○ PROPOSED SURFACE HOLE / BOTTOM HOLE</li> <li>⊙ EXISTING / PRODUCING WELLHEAD</li> <li>⊗ ABANDONED WELL</li> <li>⊕ PLUGGED &amp; ABANDONED WELL</li> <li>△ CUT CONDUCTOR</li> <li>--- LEASE BOUNDARY</li> <li>--- AS-DRILLED PATH</li> <li>--- PERMITTED DIRECTIONAL PATH</li> </ul>	<ul style="list-style-type: none"> <li>△ REVISED DIRECTIONAL PATH, 08-06-2015 DATE: 12-16-2015</li> <li>△ ADDED ADJACENT PARCELS, 08-14-2015</li> <li>△ ADDED ADJACENT PARCEL OWNERS, TAX MAP PARCEL NUMBER, &amp; ACREAGE, 09-10-2015 SCALE: 1" = 2000'</li> <li>△ UPDATED WITH AS-DRILLED DIRECTIONAL PATH, 12-29-2015 DRAWING NO: 59359</li> <li>△ UPDATED PER. DIR. PATH, ADD LP COORDS 07-25-2016 WELL LOCATION PLAT</li> </ul>
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**WELL: G W RENTALS LLC OHI 405H  
 QUAD: VALLEY GROVE, WV**



05/26/2017

<p><b>NOTE:</b>          THE PROPOSE OF THIS PLAT IS FOR THE LOCATION OF PROPOSED GAS WELLS AND DOES NOT REPRESENT A CLOSED BOUNDARY SURVEY. PROPERTY LINE AND OWNERS WERE OBTAINED FROM VARIOUS FIELD EVIDENCE, TAX RECORDS AND AERIAL MAPPING.</p>			
<p><b>LEGEND</b>          - - - - - EXTERNAL LEASE LINE</p>			
<p>Applicant / Well Operator Name          SWN PRODUCTION COMPANY, LLC</p>	<p>Well (Farm) Name          G W RENTALS LLC OHI</p>	<p>Well #          405H</p>	<p>Serial #</p>
<p>Address          PO BOX 1300, JANE LEW, WV 26037</p>	<p>County - Code          OHIO - 69</p>	<p>District          TRIADELPHIA</p>	
<p>Surface Landowner / Lessor          G W RENTALS LLC</p>	<p>USGS 7 1/2 Quadrangle Map Name          VALLEY GROVE, WV</p>		