

WR-35
Rev. 8/23/13

Rec
Office of

MAY 1 2017

APPROVED

Page 1 of 1

NAME: Eric Beard

DATE: 6-14-17

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

API 47-09-00155 County BROOKE District BUFFALO
Quad BETHANY, WV Pad Name LINDA GREATHOUSE-BRK-PAD1 Field/Pool Name PANHANDLE FIELD
Farm name LINDA REEVES GREATHOUSE Well Number LINDA GREATHOUSE BRK 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 4,450,489.237 Easting 533,450.986
Landing Point of Curve Northing 4,450,979.863 Easting 533,571.382
Bottom Hole Northing 4,453,017.808 Easting 532,721.604

Elevation (ft) 1139.2 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 9/4/2015 Date drilling commenced 8/12/2015 Date drilling ceased 9/27/2015
Date completion activities began 3/16/2017 Date completion activities ceased 3/20/2017
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 301' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1026' Void(s) encountered (Y/N) depths 303'-307'
Coal depth(s) ft 301' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

09/15/2017

API 47-09 - 00155 Farm name LINDA REEVES GREATHOUSE Well number LINDA GREATHOUSE BRK 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	28	20	150	NEW	J-55/94#		Y
Surface	17.5	13.375	450	NEW	J-55/54.5#		Y, 1 BBL
Coal	SURFACE					255' & 275'	
Intermediate 1	12.25	9.625	2075	NEW	J-55/40#		Y, 41 BBLs
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	14792	NEW	HTCDC/20#		Y
Tubing		2.375	6260	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	370	17.20	1.29	477.30	SURFACE	24
Surface	CLASS A	465	15.60	1.19	553.35	SURFACE	8
Coal	SURFACE						
Intermediate 1	CLASS A	810	15.60	1.19	963.9	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	2616	15.60	1.23	3217.68	SURFACE	24
Tubing							

Drillers TD (ft) 14792' Loggers TD (ft) 14792'
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure _____

Kick off depth (ft) 5300'

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 _____

RECEIVED
Office of Oil and Gas

MAY 12 2017

WV Department of
Environmental Protection

API 47- 09 - 00155

Farm name LINDA REEVES GREATHOUSE Well number LINDA GREATHOUSE BRK 5H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>5853.90'</u> TVD	<u>6180.47'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1500 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 1413 mcfpd Oil 463 bpd NGL _____ bpd Water 572 bpd GAS MEASURED BY Estimated Orifice Pilot

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

~~RECEIVED~~
Office of Oil and Gas
MAY 12 2017
WV Department of
Environmental Protection

Please insert additional pages as applicable.

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

Logging Company BAKER HUGHES
Address 9110 GROGAN MILL ROAD City THE WOODLANDS State TX Zip 77380

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

Stimulating Company KEANE GROUP (FRAC)
Address 2121 SAGE ROAD 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 5/10/2017

LINDA GREATHOUSE BRK 5H

PERF SUMMARY

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	2/18/2015	14,484	14,687	42
2	2/16/2017	14,344	14,451	42
3	2/27/2017	14,204	14,311	42
4	2/28/2017	14,064	14,171	42
5	2/28/2017	13,924	14,031	42
6	2/28/2017	13,784	13,891	42
7	2/28/2017	13,644	13,748	42
8	2/28/2017	13,504	13,611	42
9	3/1/2017	13,364	13,471	42
10	3/1/2017	13,224	13,331	42
11	3/1/2017	13,084	13,191	42
12	3/1/2017	12,944	13,051	42
13	3/1/2017	12,804	12,911	42
14	3/2/2017	12,664	12,771	42
15	3/2/2017	12,524	12,631	42
16	3/2/2017	12,384	12,491	42
17	3/2/2017	12,244	12,351	42
18	3/2/2017	12,104	12,211	42
19	3/3/2017	11,964	12,071	42
20	3/3/2017	11,824	11,931	42
21	3/3/2017	11,684	11,791	42
22	3/3/2017	11,544	11,651	42
23	3/3/2017	11,404	11,511	42
24	3/3/2017	11,264	11,371	42
25	3/4/2017	11,124	11,231	42
26	3/4/2017	10,984	11,091	42
27	3/4/2017	10,844	10,951	42
28	3/4/2017	10,704	10,811	42
29	3/4/2017	10,564	10,671	42
30	3/4/2017	10,424	10,531	42
31	3/4/2017	10,284	10,391	42
32	3/5/2017	10,144	10,251	42
33	3/5/2017	10,006	10,111	42
34	3/5/2017	9,864	9,971	42
35	3/5/2017	9,724	9,831	42
36	3/5/2017	9,584	9,691	42
37	3/5/2017	9,444	9,551	42
38	3/5/2017	9,304	9,411	42
39	3/6/2017	9,164	9,271	42
40	3/6/2017	9,024	9,131	42
41	3/6/2017	8,884	8,991	42
42	3/6/2017	8,744	8,851	42
43	3/6/2017	8,604	8,711	42
44	3/6/2017	8,464	8,571	42
45	3/6/2017	8,324	8,431	42

HEBEWEH
Office of Oil and Gas

MAY 12 2017

WV Department of
Environmental Protection

09/15/2017

LINDA GREATHOUSE BRK 5H
PERF SUMMARY

46	3/7/2017	8,184	8,291	42
47	3/7/2017	8,044	8,151	42
48	3/7/2017	7,904	8,011	42
49	3/7/2017	7,764	7,871	42
50	3/7/2017	7,624	7,731	42
51	3/7/2017	7,484	7,591	42
52	3/8/2017	7,344	7,451	42
53	3/8/2017	7,204	7,311	42
54	3/8/2017	7,064	7,171	42
55	3/8/2017	6,924	7,031	42
56	3/8/2017	6,784	6,891	42
57	3/8/2017	6,644	6,751	42
58	3/9/2017	6,504	6,611	42
59	3/9/2017	6,364	6,471	42

~~RECEIVED~~
Office of Oil and Gas

MAY 12 2017

WV Department of
Environmental Protection

LINDA GREATHOUSE BRK 5H
FRAC STAGE SUMMARY

STAGE NUM	Stim Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown	ISIP (PSI)	Amount of Proppant	Amount of water bbls	Amount of nitrogen/other
1	2/15/2017	86	7,781	8,838	3,969	279,880	6,240	
2	2/16/2017	92	7,946	9,024	4,261	282,040	7,100	
3	2/27/2017	88	7,643	8,194	4,158	279,340	5,729	
4	2/28/2017	95	8,021	8,376	4,360	283,600	5,320	
5	2/28/2017	96	7,823	8,302	4,409	280,060	5,331	
6	2/28/2017	93	7,551	8,118	4,260	280,080	5,233	
7	2/28/2017	96	8,064	8,900	4,231	279,440	5,101	
8	2/28/2017	96	7,822	8,361	4,350	284,680	5,174	
9	3/1/2017	97	7,958	8,310	4,337	278,740	5,051	
10	3/1/2017	97	7,915	8,449	4,766	282,920	5,235	
11	3/1/2017	97	8,020	8,461	4,205	282,360	5,125	
12	3/1/2017	98	7,550	7,989	4,336	283,580	5,254	
13	3/1/2017	94	7,329	7,869	4,286	274,760	5,184	
14	3/2/2017	97	7,605	8,197	4,243	281,040	4,893	
15	3/2/2017	99	7,725	8,173	4,243	281,620	4,840	
16	3/2/2017	99	7,721	8,393	4,319	281,860	4,745	
17	3/2/2017	99	7,897	8,258	4,248	288,960	5,463	
18	3/2/2017	95	7,856	8,756	4,310	285,100	5,030	
19	3/3/2017	95	7,678	8,617	4,434	277,400	4,758	
20	3/3/2017	95	8,005	8,548	4,271	281,660	4,773	
21	3/3/2017	97	7,791	8,104	4,297	280,480	4,730	
22	3/3/2017	95	7,947	8,909	4,307	280,740	4,747	
23	3/3/2017	98	7,537	8,021	4,328	281,280	4,822	
24	3/3/2017	99	7,274	7,411	5,192	286,940	4,784	
25	3/4/2017	97	7,512	8,114	4,359	283,940	4,778	
26	3/4/2017	95	7,752	8,945	4,280	287,420	4,435	
27	3/4/2017	97	7,275	7,795	4,209	281,500	4,633	
28	3/4/2017	97	7,347	7,898	4,269	280,600	4,602	
29	3/4/2017	98	7,649	8,067	4,211	285,540	4,811	
30	3/4/2017	99	7,560	8,288	4,264	285,200	4,659	
31	3/4/2017	99	7,608	8,090	4,296	283,500	5,798	
32	3/5/2017	97	7,531	7,931	4,397	284,500	4,580	
33	3/5/2017	99	7,335	7,659	4,343	283,660	4,535	
34	3/5/2017	102	7,435	8,026	4,218	275,900	4,511	
35	3/5/2017	99	7,699	8,186	4,392	278,120	4,241	
36	3/5/2017	100	7,260	7,774	4,274	285,420	4,610	
37	3/5/2017	99	7,090	7,857	4,299	279,620	4,491	
38	3/5/2017	99	7,138	7,716	4,339	283,940	4,401	
39	3/6/2017	100	7,211	7,662	4,306	283,780	4,460	
40	3/6/2017	100	7,048	7,775	4,292	281,920	4,555	
41	3/6/2017	100	7,135	7,699	4,201	292,300	4,316	
42	3/6/2017	100	7,106	7,502	4,257	280,800	4,184	
43	3/6/2017	99	7,058	7,818	4,305	280,040	4,374	
44	3/6/2017	100	7,214	8,243	4,192	286,540	4,314	
45	3/6/2017	99	6,956	7,733	4,423	289,110	4,169	
46	3/7/2017	100	6,927	7,642	4,296	283,520	4,211	
47	3/7/2017	99	6,810	7,185	4,277	281,300	4,194	
48	3/7/2017	99	7,080	7,694	4,333	280,960	5,127	
49	3/7/2017	98	7,159	7,678	4,220	283,240	4,228	
50	3/7/2017	98	7,169	7,486	4,357	281,100	4,130	
51	3/7/2017	100	7,159	7,555	4,169	278,600	4,083	
52	3/8/2017	100	7,044	7,392	4,278	282,100	4,177	
53	3/8/2017	98	7,512	7,896	4,294	282,640	4,709	
54	3/8/2017	97	7,154	8,211	4,275	281,180	4,852	
55	3/8/2017	100	6,982	7,677	4,601	282,980	4,669	
56	3/8/2017	98	6,984	7,485	5,049	273,200	3,985	
57	3/8/2017	95	6,706	8,087	4,907	273,460	3,869	
58	3/9/2017	98	6,792	8,126	4,596	277,260	3,921	
59	3/9/2017	100	6,864	7,963	4,102	277,320	4,073	

09/15/2017

Hydraulic Fracturing Fluid Product Component Information Disclosure

RECEIVED
Office of Oil and Gas

MAY 12 2017



WV Department of
Environmental Protection



Job Start Date:	1/20/2017
Job End Date:	3/9/2017
State:	West Virginia
County:	Brooke
API Number:	47-009-00155-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Linda Greathouse BRK 5H
Latitude:	40.20414000
Longitude:	-80.60694500
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	5,878
Total Base Water Volume (gal):	11,562,963
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	SWN	Carrier/Base Fluid	Water	7732-18-5	100.00000	83.83409	None
Sand (Proppant)	Keane	Proppant	Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	14.44899	None
Hydrochloric Acid (15%)	Keane	Acidizing	Water	7732-18-5	85.00000	1.25490	None
			Hydrochloric Acid	7647-01-0	15.00000	0.22145	None
Hydrochloric Acid (7.5%)	Keane	Acid Inhibitor	Water	7732-18-5	92.50000	0.14302	None
			Hydrochloric Acid	7647-01-0	7.50000	0.01160	None
KFR-17	Keane	Friction Reducer	Distillates (petroleum), hydrotreated light	64742-47-8	45.00000	0.03440	None
			ethanediol	107-21-1	10.00000	0.00765	None
			Alcohols, C12-16, ethoxylated	68213-24-1	2.00000	0.00153	None
			Fatty alcohols ethoxylated	Proprietary	2.00000	0.00153	None
KFEAC-30	Keane	Iron Control					

			acetic acid	64-19-7	60.00000	0.00381	None
			Citric acid	77-92-9	40.00000	0.00254	None
KAI-13	Keane	Acid Inhibitor					
			ethanediol	107-21-1	40.00000	0.00126	None
			dipropylene glycol, monomethyl ether	34590-94-8	20.00000	0.00063	None
			formic acid	64-18-6	10.00000	0.00031	None
			Tar bases, quinoline derivs., benzyl chloride-quaternized	72480-70-7	10.00000	0.00031	None
			Cinnamaldehyde	104-55-2	10.00000	0.00031	None
			Ethoxylated alcohol	68131-39-5	10.00000	0.00031	None
			propan-2-ol	67-63-0	5.00000	0.00016	None
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.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Water	7732-18-5	85.00000	1.25490	
			Water	7732-18-5	92.50000	0.14302	
			ethanediol	107-21-1	10.00000	0.00765	
			Citric acid	77-92-9	40.00000	0.00254	
			Alcohols, C12-16, ethoxylated	68213-24-1	2.00000	0.00153	
			Fatty alcohols ethoxylated	Proprietary	2.00000	0.00153	
			dipropylene glycol, monomethyl ether	34590-94-8	20.00000	0.00063	
			formic acid	64-18-6	10.00000	0.00031	
			Ethoxylated alcohol	68131-39-5	10.00000	0.00031	
			Cinnamaldehyde	104-55-2	10.00000	0.00031	
			Tar bases, quinoline derivs., benzyl chloride-quaternized	72480-70-7	10.00000	0.00031	
			propan-2-ol	67-63-0	5.00000	0.00016	
			ammonium chloride	12125-02-9	5.00000		
			Oxyalkylated alcohol	Proprietary	5.00000		

* 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)

RECEIVED
Office of Oil and Gas

MAY 12 2017

WV Department of
Environmental Protection

Well Name: LINDA GREATHOUSE BRK 5H

LITHOLOGY/FORMATION	TOP DEPTH, TVD (FT)	BOTTOM DEPTH, TVD (FT)	TOP DEPTH, MD (FT)	BOTTOM DEPTH, MD (FT)	QUANTITY AND TYPE OF FLUID
Base of Fresh Water	N.A.	301.00	N.A.	301.00	
Top of Salt Water	1026.00	N.A.	1026.00	N.A.	
Pittsburgh Coal	301.00	307.00	301.00	307.00	
Big Injun (ss)	1470.53	1961.90	1472.00	1969.00	
Berea (siltstone)	1961.90	5310.28	1969.00	5414.43	
Rhinestreet (shale)	5310.28	5567.70	5414.43	5687.92	
Cashaqua (shale)	5567.70	5614.05	5687.92	5742.16	
Middlesex (shale)	5614.05	5668.67	5742.16	5810.12	
Burket (shale)	5668.67	5692.80	5810.12	5842.51	
Tully (ls)	5692.80	5749.29	5842.51	5926.52	
Mahantango (shale)	5749.29	5853.90	5926.52	6180.47	
Marcellus (shale)	5853.90	N.A.	6180.47	N.A.	GAS

RECEIVED
Office of Oil and Gas

MAY 12 2017

WV Department of
Environmental Protection

RETTEW

RETTEW Associates, Inc.
27 Travato Street, Suite 101
Bridgeport, WV 26330
Phone (800) 738-8395
Email: rettew@rettew.com
Website: www.rettew.com

SURFACE HOLE LOCATION (SHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,450,489.237 EASTING: 533,450.986
LANDING POINT LOCATION (LPL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,450,979.863 EASTING: 533,571.382
BOTTOM HOLE LOCATION (BHL):
UTM (NAD83, ZONE 17, METERS): NORTHING: 4,453,017.808 EASTING: 532,721.604

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

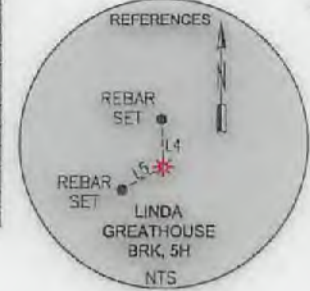
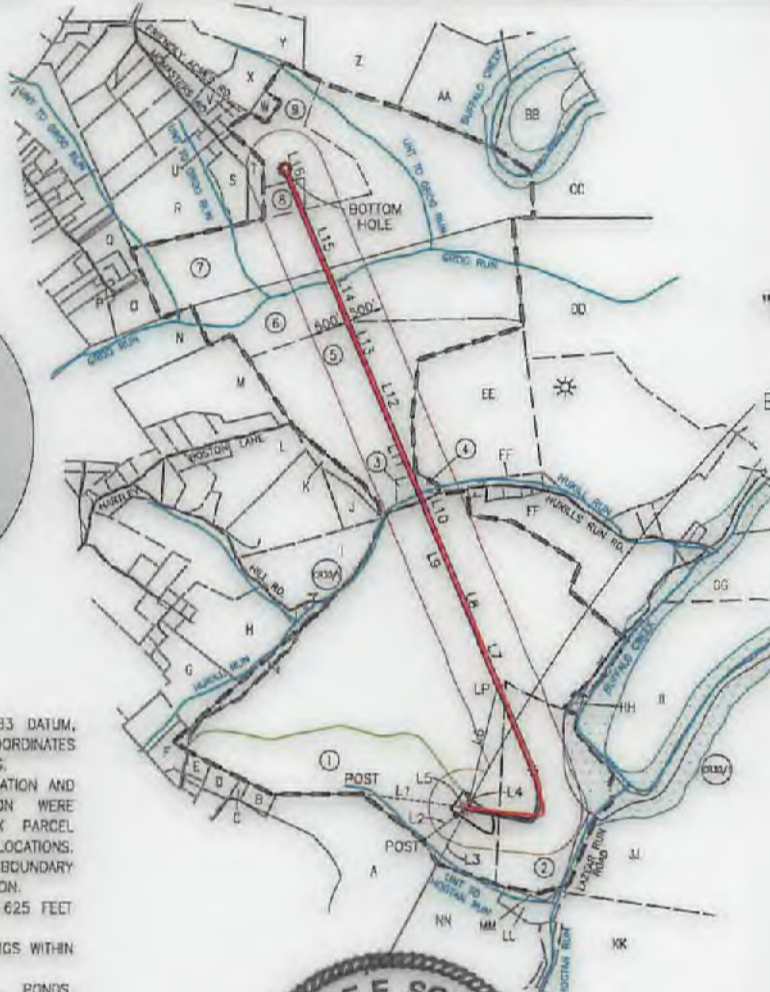
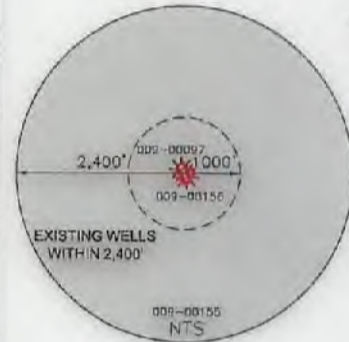
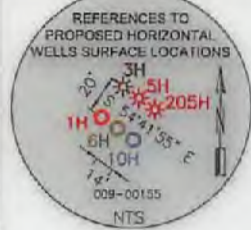
AS-DRILLED

SHL

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 82°46'47" W	1393.34'	SHL TO LANDMARK	FENCE POST
L2	S 52°53'47" W	713.52'	SHL TO LANDMARK	FENCE POST
L3	S 28°02'12" W	823.49'	SHL TO LANDMARK	FOUND STONE
L4	N 00°53'28" E	168.72'	SHL TO REF. PNT.	1/2" REBAR SET
L5	S 57°34'04" W	177.26'	SHL TO REF. PNT.	1/2" REBAR SET
L6	N 13°47'15" E	1657.42'	SHL TO LP	
L7	N 22°00'54" W	739.98'	AS-DRILLED BORE	
L8	N 23°35'28" W	741.92'	AS-DRILLED BORE	
L9	N 22°21'39" W	648.51'	AS-DRILLED BORE	
L10	N 22°54'47" W	741.27'	AS-DRILLED BORE	
L11	N 22°59'59" W	742.93'	AS-DRILLED BORE	
L12	N 22°10'48" W	741.85'	AS-DRILLED BORE	
L13	N 22°58'11" W	741.76'	AS-DRILLED BORE	
L14	N 22°40'55" W	741.69'	AS-DRILLED BORE	
L15	N 22°36'49" W	649.81'	AS-DRILLED BORE	
L16	N 21°59'51" W	754.69'	AS-DRILLED BORE	

Latitude: 40°12'30"

Longitude: 80°35'00"

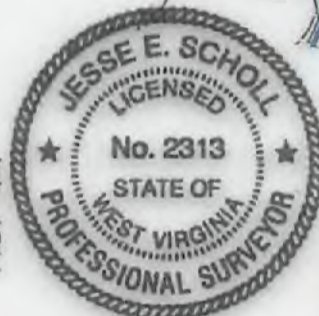


SWN PRODUCTION COMPANY, LLC
"LINDA GREATHOUSE BRK, 5H"
SURFACE HOLE
ELEV: 1139.20' (AS-DRILLED)

NOTES ON SURVEY

- COORDINATES 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 FIELD LOCATIONS.
- THIS PLAT DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
- NO DWELLINGS AND BUILDINGS 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, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
- NO NATURALLY PRODUCING TROUT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.

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.



PROPERTY OWNER INFORMATION
(SEE PROPERTY OWNER SHEET)

2500 0 2500

GRAPHIC SCALE IN FEET

COMPANY: **SWN** Production Company, LLC

P.S. 2313

<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>LINDA GREATHOUSE BRK</p> <p>OPERATOR'S WELL #: 5H</p> <p>API WELL #: 47 09 00155</p> <p>STATE COUNTY PERMIT</p>
---	---	--

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

WATERSHED: UPPER OHIO SOUTH ELEVATION: ±1139.20 (AS-DRILLED)

DISTRICT: BUFFALO COUNTY: BROOKE QUADRANGLE: BETHANY, WV

SURFACE OWNER: LINDA REEVES GREATHOUSE ACREAGE: ±323.19

OIL & GAS ROYALTY OWNER: LINDA REEVES GREATHOUSE ACREAGE: ±760.80

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 **09/15/2017**

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 5,879' TVD 14,792' TMD

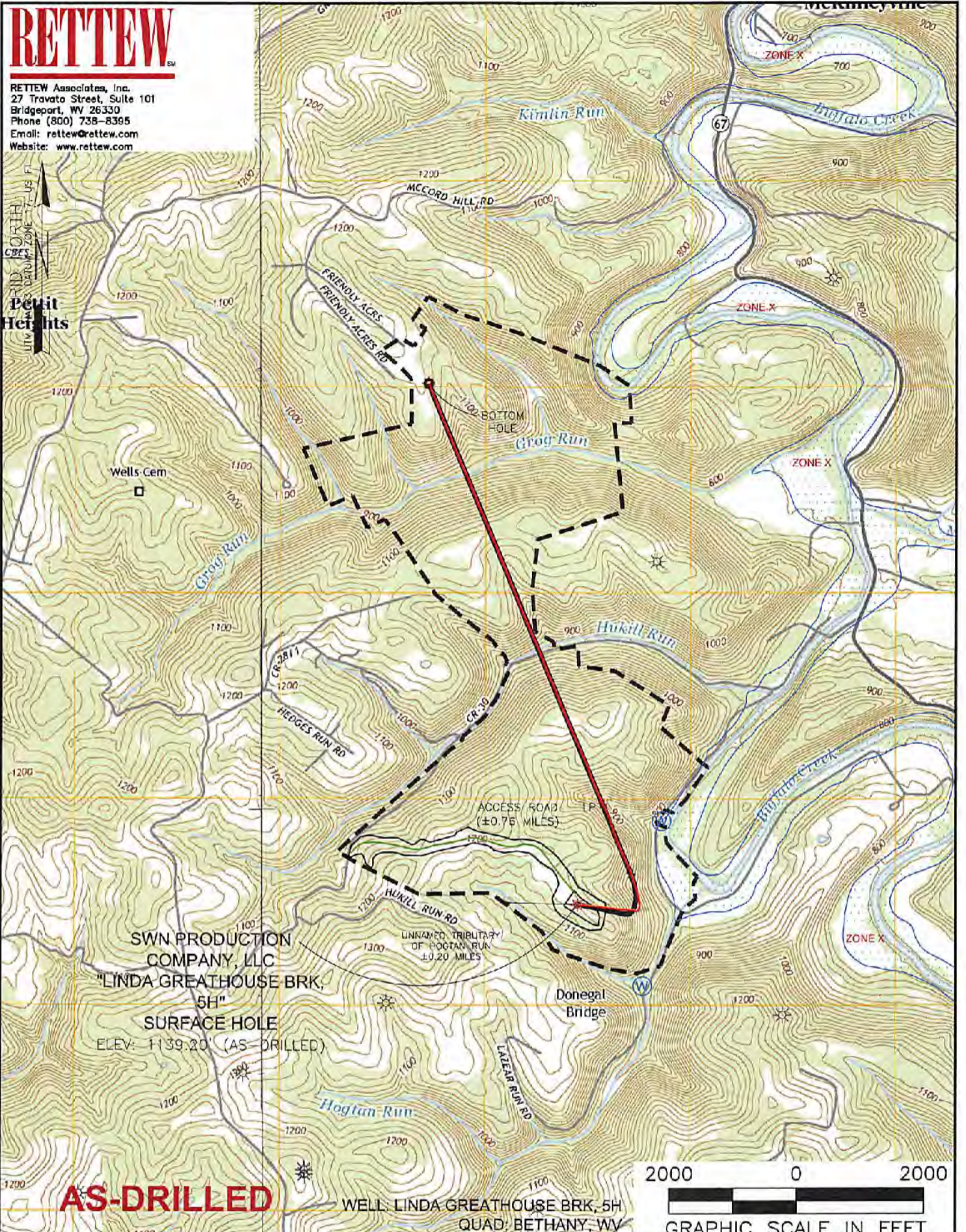
WELL OPERATOR: SWN PRODUCTION COMPANY, LLC	DESIGNATED AGENT: DEE SOUTHALL
ADDRESS: P.O. BOX 1300	ADDRESS: P.O. BOX 1300
CITY: JANE LEW STATE: WV ZIP CODE: 26378	CITY: JANE LEW STATE: WV ZIP CODE: 26378

LEGEND:	TIE LINE	REVISIONS:	DATE: 12-16-2015
○ PROPOSED SURFACE HOLE / BOTTOM HOLE	--- LEASE BOUNDARY		
⊙ EXISTING / PRODUCING WELLHEAD	--- 500' DHP BUFFER		
⊗ ABANDONED WELL	--- PROPOSED DHP		
⊗ PLUGGED & ABANDONED WELL	--- AS-DRILLED DHP		
△ CUT CONDUCTOR	--- ABANDONED PATH		
			DRAWN BY: B. HERMAN
			SCALE: 1" = 2500'
			DRAWING NO: 087569015
			WELL LOCATION PLAT

RETTEW

RETTEW Associates, Inc.
27 Travata Street, Suite 101
Bridgeport, WV 26330
Phone (800) 738-8395
Email: rettetw@rettetw.com
Website: www.rettetw.com

PERMIT HEIGHTS
LIVABLE DRAINAGE ZONE 17- US F



AS-DRILLED

WELL: LINDA GREATHOUSE BRK, 5H
QUAD: BETHANY, WV



NAME AND DISTANCE TO THE NEAREST STREAM: HOGTAN RUN IS LOCATED ±0.30 MILES SOUTHEAST OF THE CENTER OF THE DRILL PAD.		STREAM CROSSING COORDINATES (NAD 83): NO NEW CROSSINGS.		COMPANY: 	
WELL RESTRICTIONS: WELL PAD, LOD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >625 FEET CENTER OF PAD TO AGRICULTURAL BUILDINGS LARGER THAN 2500 SQ FT: >625 FEET		OPERATOR'S: LINDA GREATHOUSE BRK			
FEMA FLOOD INFORMATION: BY GRAPHIC PLOTTING ONLY FEMA FIRM INCORPORATED AREA OF BROOKE COUNTY, WEST VIRGINIA; MAP NUMBER 54009C0130D; EFFECTIVE DATE: APRIL 19, 2010. FLOOD ZONE X IS SITUATED WITHIN THE LEASE BOUNDARY.		LOCATION: BUFFALO DISTRICT, BROOKE COUNTY, WEST VIRGINIA		SURFACE HOLE LOCATION: 09/15/2017	
LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ☼ EXISTING / PRODUCING WELLHEAD ✕ ABANDONED WELL ✕ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR		(S) EXISTING SPRING (W) EXISTING WATER WELL — ACCESS ROAD — ACCESS ROAD TO PREV. SITE — HIGHWAY/INTERSTATE — COUNTY ROAD		REVISIONS: DATE: 12-16-2015 DRAWN BY: B. HERMAN SCALE: 1" = 2000' DRAWING NO: 087569015 TOPOGRAPHIC MAP	



RETTEW Associates, Inc.
 27 Travato Street, Suite 101
 Bridgeport, WV 26330
 Phone (800) 738-8395
 Email: rettew@rettew.com
 Website: www.rettew.com

PROPERTY OWNERS
AS-DRILLED

TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	LINDA REEVES GREATHOUSE (S)/(R) VICKI LYNN HAMILTON (S)/(R)	03-B37-0087-0000	±323.19
2	JAMES & JO ELLEN HAZLETT (S)	03-B42-0060-0002	±65.47
3	STEPHEN KOREN (S)/(R)	03-B37-0090-0000	±2.04
4	ROBERT BONE (S)	03-B37-0089-0000	±0.78
5	DEBRA F.,-CYPHERT 1/4 (S)/(R) MATTHEW H. FAIR,1/4, ETAL (S)/(R)	03-B37-0091-0000	±93.93
6	SCHIAPPA & COMPANY INC. (S)	03-B37-0023-0000	±90.91
7	SCHIAPPA & COMPANY INC. (S)/(R)	03-B37-0022-0000	±145.96
8	JAMES W. & DENISE L. MYERS (S)/(R)	03-B37-0014-0000	±5.00
9	HARLEY J. LEMASTERS (S)/(R)	03-B37-0013-0000	±33.54

TRACT	ADJOINING PROPERTY OWNERS	TAX PARCEL	ACRES
A	ROCCO BASIL	03-B42-0019-0000	±100.05
B	RICKEY & DEBRA CONLEY	03-B42-0018-0000	±2.14
C	EDWARD E. & NANCY J. CONLEY	03-B42-0016-0000	±0.74
D	EDWARD E. & NANCY J. CONLEY	03-B42-0015-0000	±3.10
E	DANIEL R. GORBY	03-B42-0026-0000	±1.97
F	DANIEL R. GORBY	03-B42-0003-0000	±5.00
G	SAMUEL M. HALL	03-B42-0001-0000	±18.12
H	VICTOR CHARLES SMITH	03-B37-0130-0000	±27.35
I	CHRISTOPHER SCOTT MILLER	03-B37-0094-0000	±24.20
J	KEVIN CHUMNEY	03-B37-0093-0000	±5.91
K	DONALD G. CONAWAY	03-B37-0092-0000	±3.97
L	WAYNE ALLEN RICHMOND	03-B37-0096-0000	±19.67
M	VICKIE C. & SHEENA R. LOUGHERY	03-B37-0103-0000	±40.00
N	VICKIE C. & SHEENA R. LOUGHERY	03-B37-0041-0000	±41.00
O	RALPH JR & CAROL J. WALNOHA	03-B37-0034-0000	±6.79
P	RALPH JR & CAROL J. WALNOHA	03-B37-0033-0000	±0.80
Q	JAMES W. & LISA GIBSON	03-B37-0028-0000	±4.06
R	HARLEY J. LEMASTERS	03-B37-0021-0000	±31.17
S	THOMAS & CAROLYN CARBASHO	03-B37-0016-0000	±7.29
T	THOMAS W. & CAROLYN L. CARBASHO	03-B37-0015-0000	±5.00
U	MICHAEL MCCLOUD	03-B37-0018-0000	±1.08
V	RONALD D. & JEAN A. TAYLOR	03-B37-0019-0000	±1.08
W	HARLEY J. LEMASTERS	03-B37-0012-0000	±2.00
X	RONALD D. & JEAN A. TAYLOR	03-B37-0011-0000	±11.96
Y	NILA BOYD, CLINTON MCCORD, JOHN JOHN, REBA JOHN, & CAROLYN JONES	03-B32-0146-0000	±29.06
Z	CITY OF WELLSBURG COMBINED WATER & SEWER BOARD	03-B32-0140-0002	±89.58
AA	MARILYN ROSETTA MCCORD	03-B37-0042-0000	±34.26
BB	JOHN A. & BARBARA A. MCCREARY	03-B37-0043-0000	±29.00
CC	VIVIAN LUCILLE MAZZELLA	03-B37-0045-0000	±110.58
DD	WILLIAM E. & HAZEL E. JOHNSTON	03-B37-0050-0000	±156.50
EE	DEBRA CYPHERT & MATTHEW FAIR, ETAL	03-B37-0088-0000	±59.95
FF	BRIAN K. & QINA M. HANEY	03-B37-0077-0000	±45.75
GG	IPS INVESTMENT PARTNERSHIP	03-B37-0066-0000	±65.00
HH	EDGAR S. & CECELIA M. ERDMAN	03-B42-0049-0000	±0.83
II	ELLEN B. SANFORD	03-B37-0076-0000	±66.00
JJ	LABELLE FARMS INC.	03-B42-0060-0000	±349.86
KK	JEFFREY S. & DAWNA J. WARD	03-B42-0059-0004	±98.11
LL	AUSTIN WAYNE & JUSTINE ADAH WADE	03-B42-0050-0000	±4.94
MM	AUSTIN WAYNE & JUSTINE ADAH WADE	03-B42-0060-0001	±0.67
NN	PHYLLIS P. MARKER	03-B42-0052-0000	±91.51

09/15/2017

REVISIONS:	COMPANY:	SWN Production Company, LLC	SWN Production Company™
	OPERATOR'S	LINDA GREATHOUSE BRK	DATE: 12-16-2015
	WELL #:	5H	DRAWN BY: B. HERMAN
	LOCATION:	BUFFALO DISTRICT, BROOKE COUNTY, WEST VIRGINIA	SCALE: N/A
			DRAWING NO:087569015
			PROPERTY OWNERS

AS-DRILLED
PROPERTY OWNERS

TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	LINDA REEVES GREATHOUSE (S) \ (R) VICKI LYNN HAMILTON (S) \ (R)	02-842-0087-0000	±232.19
2	JAMES & JO ELLEN HAZLETT (S)	02-842-0080-0002	±52.47
3	STEPHEN KOREN (S) \ (R)	02-842-0080-0000	±2.04
4	ROBERT BONE (S)	02-842-0088-0000	±0.78
5	DEBRA F. CYPHERT 1 \ 4 (S) \ (R) MATTHEW H. FAIR 1 \ 4 (S) \ (R)	02-842-0091-0000	±92.93
6	SCHARRA & COMPANY INC. (S)	02-842-0023-0000	±90.91
7	SCHARRA & COMPANY INC. (S) \ (R)	02-842-0023-0000	±142.98
8	JAMES W. & DENISE L. MYERS (S) \ (R)	02-842-0014-0000	±2.00
9	HARLEY J. LEMASTERS (S) \ (R)	02-842-0013-0000	±22.24

TRACT	ADJOINING PROPERTY OWNERS	TAX PARCEL	ACRES
A	ROCCO BASIL	02-842-0019-0000	±100.02
B	RICKY & DEBRA CONLEY	02-842-0018-0000	±2.14
C	EDWARD E. & NANCY J. CONLEY	02-842-0018-0000	±0.74
D	EDWARD E. & NANCY J. CONLEY	02-842-0018-0000	±3.10
E	DANIEL R. GORBY	02-842-0026-0000	±1.97
F	DANIEL R. GORBY	02-842-0003-0000	±2.00
G	SAMUEL M. HALL	02-842-0001-0000	±18.12
H	VICTOR CHARLES SMITH	02-842-0120-0000	±27.29
I	CHRISTOPHER SCOTT MILLER	02-842-0084-0000	±24.20
J	KEVIN CHUMNEY	02-842-0093-0000	±2.91
K	DONALD G. CONWAY	02-842-0092-0000	±3.97
L	WAYNE ALLEN RICHMOND	02-842-0088-0000	±19.87
M	VICKIE C. & SHEENA R. LOUGHERY	02-842-0102-0000	±40.00
N	VICKIE C. & SHEENA R. LOUGHERY	02-842-0041-0000	±41.00
O	RALPH JR. & CAROL J. WALONAH	02-842-0024-0000	±6.79
P	RALPH JR. & CAROL J. WALONAH	02-842-0023-0000	±0.80
Q	JAMES W. & LISA GIBSON	02-842-0028-0000	±4.08
R	HARLEY J. LEMASTERS	02-842-0051-0000	±21.17
S	THOMAS & CAROLYN CARBARSHO	02-842-0018-0000	±2.29
T	THOMAS W. & CAROLYN L. CARBARSHO	02-842-0018-0000	±2.00
U	MICHAEL MCGLOUD	02-842-0018-0000	±1.08
V	RONALD D. & JEAN A. TAYLOR	02-842-0019-0000	±1.08
W	HARLEY J. LEMASTERS	02-842-0012-0000	±2.00
X	RONALD D. & JEAN A. TAYLOR	02-842-0011-0000	±11.98
Y	WILA BOYD, CLINTON MCCORD, JOHN JOHN, REBA JOHN, & CAROLYN JONES	02-842-0140-0002	±99.88
Z	CITY OF WELLSBURG COMBINED WATER & SEWER BOARD		
AA	MARILYN ROSETTA MCCORD	02-842-0042-0000	±24.28
BB	JOHN A. & BARBARA A. MCGREGARY	02-842-0042-0000	±29.00
CC	WYAN LUCILLE MASZELLA	02-842-0042-0000	±110.88
DD	WILLIAM E. & HAZEL E. JOHNSTON	02-842-0020-0000	±188.80
EE	DEBRA CYPHERT & MATTHEW FAIR, ETAL	02-842-0088-0000	±29.92
FF	BRIAN K. & GINA M. HANEY	02-842-0073-0000	±42.72
GG	LPS INVESTMENT PARTNERSHIP	02-842-0088-0000	±52.00
HH	EDGAR S. & CECILIA M. ERDMAN	02-842-0049-0000	±0.82
II	ELLEN B. SANFORD	02-842-0078-0000	±88.00
JJ	LABELLE FARMS INC.	02-842-0080-0000	±248.88
KK	JEFFREY S. & DAWN J. WARD	02-842-0099-0004	±98.11
LL	AUSTIN WAYNE & JUSTINE ADAH WADE	02-842-0020-0000	±4.84
MM	AUSTIN WAYNE & JUSTINE ADAH WADE	02-842-0080-0001	±0.87
NN	PHYLIS F. MARKER	02-842-0022-0000	±91.21

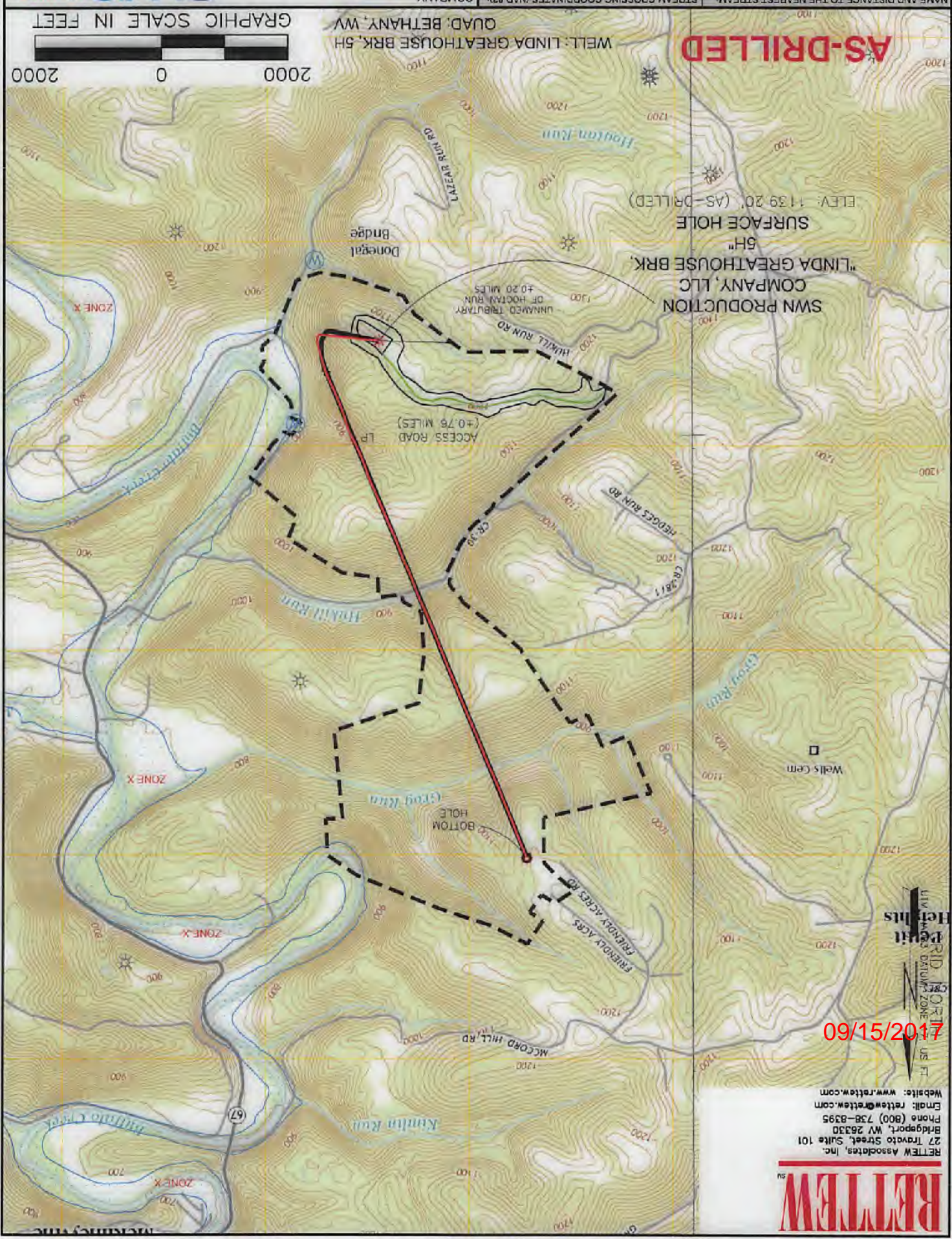
09/15/2017

REVISIONS:	COMPANY:	SWN Production Company, LLC
	OPERATOR'S:	LINDA GREATHOUSE BRK
	WELL #:	5H
	LOCATION:	BROOKE COUNTY, WEST VIRGINIA BUFFALO DISTRICT,
	DATE:	12-16-2015
	DRAWN BY:	B. HERMAN
	SCALE:	N/A
	DRAWING NO:	082589012
	PROPERTY OWNERS:	



RETTEW Associates, Inc.
 27 Travato Street, Suite 101
 Bridgeport, WV 26330
 Phone (800) 738-8395
 Email: rettew@rettew.com
 Website: www.rettew.com

09/15/2017



NAME AND DISTANCE TO THE NEAREST STREAM: HOGAN RUN IS LOCATED +0.30 MILES SOUTHEAST OF THE CENTER OF THE DRILL PAD. NO NEW CROSSINGS.	COMPANY: SWN Production Company, LLC SWN Production Company, LLC
---	--

WELL RESTRICTIONS: WELL PAD, LOD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >625 FEET CENTER OF PAD TO AGRICULTURAL BUILDINGS LARGER THAN 2500 SQ FT: >625 FEET
--

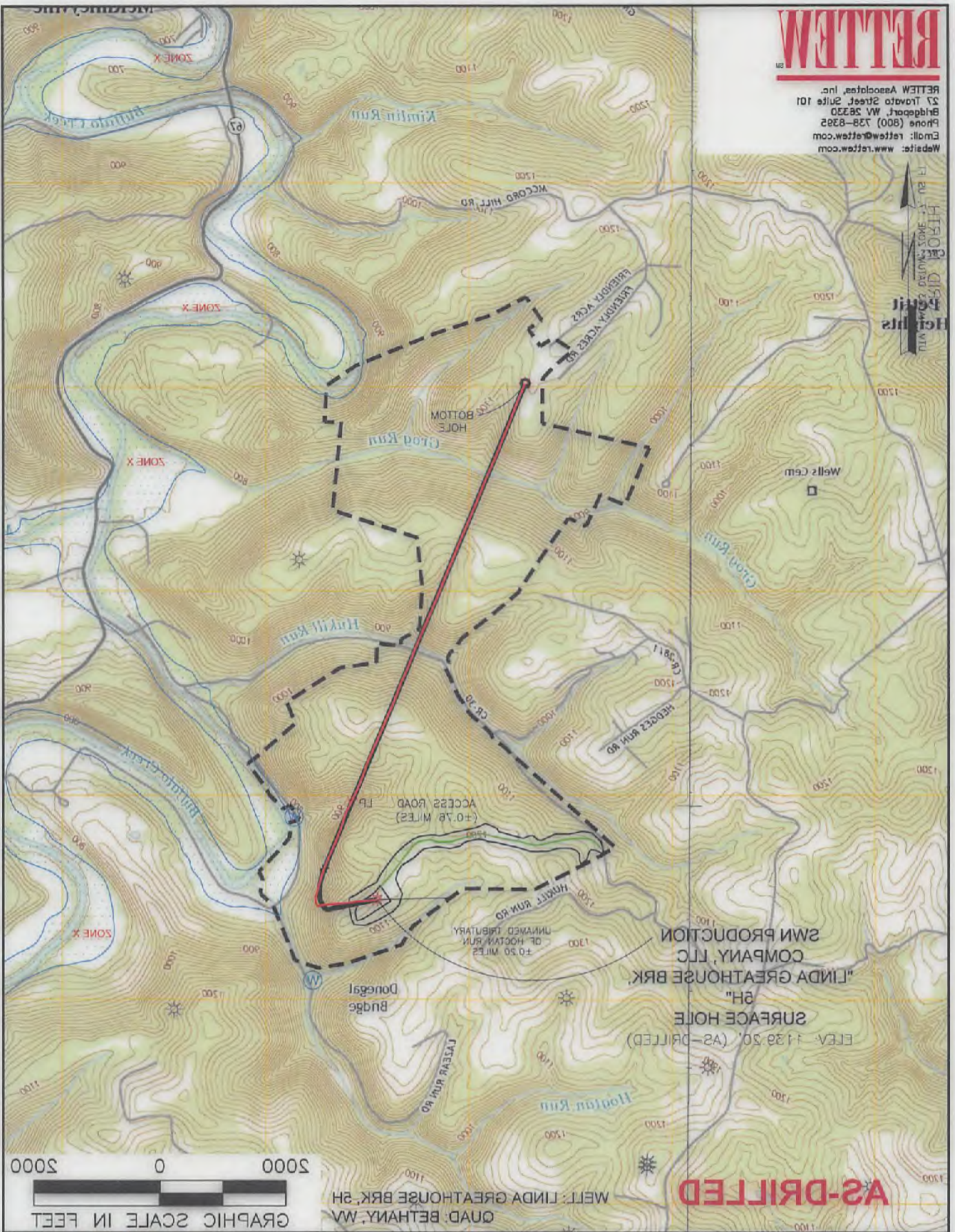
FEEMA FLOOD INFORMATION: BY GRAPHIC PLOTTING ONLY. FEMA FIRM INCORPORATED AREA OF BROOKE COUNTY, WEST VIRGINIA, MAP NUMBER 54090C01300, EFFECTIVE DATE: APRIL 19, 2010. FLOOD ZONE X IS SITUATED WITHIN THE LEASE BOUNDARY.

REVISIONS: DATE: 12-16-2015 DRAWN BY: B. HERMAN SCALE: 1" = 2000' DRAWING NO: 087569015 TOPOGRAPHIC MAP
--

LEGEND: PROPOSED SURFACE HOLE / BOTTOM HOLE EXISTING / PRODUCING WELLHEAD EXISTING WATER WELL EXISTING SPRINGS CUT CONDUCTOR PLUGGED & ABANDONED WELL ABANDONED WELL ACCESS ROAD ACCESS ROAD TO PREV. SITE HIGHWAY/INTERSTATE COUNTY ROAD	C:\RETTEW\AUTL\W\087569015-LINDA GREATHOUSE BRK\SHEETS\SVAS-BUILT\087569015-SV-5H-ASDRILL.DWG WEDNESDAY DECEMBER 16 2015 02:20PM PROPERTY NUMBER 2501162082 PAD ID 3001155488
--	--

RETTEW

RETTEW Associates, Inc.
 27 Toward Street, Suite 101
 Bridgetown, WV 26330
 Phone (800) 738-8382
 Email: rettetw@rettetw.com
 Website: www.rettetw.com

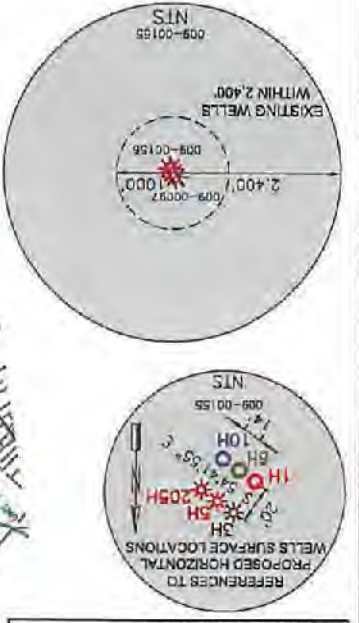


<p>NAME AND DISTANCE TO THE NEAREST STREAM: HOOTAN RUN IS LOCATED ±0.30 MILES SOUTHEAST OF THE CENTER OF THE DRILL PAD. NO NEW CROSSINGS. STREAM CROSSING COORDINATES (NAD 83):</p>		<p>COMPANY: SWN Production Company, LLC SWN Production Company, LLC</p>	
<p>WELL RESTRICTIONS: WELL PAD, LOD, & E & S CONTROL FEATURES TO PERENNIAL STREAM, LAKE, POND, RESERVOIR OR WETLAND: >100 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO NATURALLY PRODUCING TROUT STREAM: >300 FEET WELL PAD, LOD, & E & S CONTROL FEATURES TO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY: >1000 FEET WELL SHL TO EXISTING WATER WELL OR DEVELOPED SPRING: >250 FEET CENTER OF PAD TO OCCUPIED DWELLING STRUCTURE: >825 FEET CENTER OF PAD TO AGRICULTURAL BUILDINGS LARGER THAN 2500 SQ FT: >825 FEET</p>		<p>REVISIONS: DATE: 12-16-2012 DRAWN BY: B. HERMAN SCALE: 1" = 2000' DRAWING NO: 08268012 TOPOGRAPHIC MAP PROPERTY NUMBER 2501162085 PAD ID 3001125488</p>	
<p>WELL #: 5H</p>		<p>OPERATORS: LINDA GREATHOUSE BRK</p>	
<p>LOCATION: BROOKE COUNTY, WEST VIRGINIA BUFFALO DISTRICT</p>		<p>REVISIONS: DATE: 12-16-2012 DRAWN BY: B. HERMAN SCALE: 1" = 2000' DRAWING NO: 08268012 TOPOGRAPHIC MAP PROPERTY NUMBER 2501162085 PAD ID 3001125488</p>	
<p>SURFACE HOLE LOCATION: ELEV: ±139.20' (AS-DRILLED) SURFACE HOLE 5H LINDA GREATHOUSE BRK. SWN PRODUCTION COMPANY, LLC</p>		<p>LEGEND: ○ PROPOSED SURFACE HOLE \ BOTTOM HOLE ☀ EXISTING \ PRODUCING WELLHEAD ✖ ABANDONED WELL ✖ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR — COUNTY ROAD — HIGHWAY/INTERSTATE — ACCESS ROAD TO PREV. SITE — EXISTING WATER WELL ⊕ EXISTING SPRING</p>	
<p>BOTTOM HOLE LOCATION: LATITUDE: 40.32849° LONGITUDE: -80.61238° GEOGRAPHIC (NAD83):</p>		<p>REVISIONS: DATE: 12-16-2012 DRAWN BY: B. HERMAN SCALE: 1" = 2000' DRAWING NO: 08268012 TOPOGRAPHIC MAP PROPERTY NUMBER 2501162085 PAD ID 3001125488</p>	
<p>FLD ZONE X IS SITUATED WITHIN THE LEASE BOUNDARY.</p>		<p>FLD ZONE X IS SITUATED WITHIN THE LEASE BOUNDARY.</p>	
<p>BY GRAPHIC LOCATION ONLY: FIRM INCORPORATED AREA OF BROOKE COUNTY, WEST VIRGINIA; MAP NUMBER 2406030300; EFFECTIVE DATE: APRIL 19, 2010.</p>		<p>BY GRAPHIC LOCATION ONLY: FIRM INCORPORATED AREA OF BROOKE COUNTY, WEST VIRGINIA; MAP NUMBER 2406030300; EFFECTIVE DATE: APRIL 19, 2010.</p>	

SURFACE HOLE LOCATION (SHL):
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,450,489,237
 EASTING: 533,571,382

LANDING POINT LOCATION (LPL):
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,450,979,863
 EASTING: 533,571,382

BOTTOM HOLE LOCATION (BHL):
 UTM (NAD83, ZONE 17, METERS):
 NORTHING: 4,453,017,808
 EASTING: 532,721,804



GRID NORTH
 UTM, WAD83 DATUM, ZONE 17, US FT

LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT
L1	N 82°46'47" W	1393.34	SHL TO LANDMARK	FENCE POST
L2	S 52°53'47" W	713.52	SHL TO LANDMARK	FOUND POST
L3	S 28°02'12" W	823.49	SHL TO LANDMARK	FOUND POST
L4	N 00°53'28" W	168.72	SHL TO REF. PNT.	1/2" REBAR SET
L5	S 57°34'04" W	177.26	SHL TO REF. PNT.	1/2" REBAR SET
L6	N 13°47'15" E	1657.42	SHL TO LP	
L7	N 22°00'54" W	739.98	AS-DRILLED BORE	
L8	N 22°21'39" W	646.51	AS-DRILLED BORE	
L9	N 22°54'47" W	741.27	AS-DRILLED BORE	
L10	N 22°59'59" W	742.83	AS-DRILLED BORE	
L11	N 22°10'48" W	741.85	AS-DRILLED BORE	
L12	N 22°58'11" W	741.76	AS-DRILLED BORE	
L13	N 22°40'55" W	741.69	AS-DRILLED BORE	
L14	N 22°38'48" W	649.81	AS-DRILLED BORE	
L15	N 21°59'51" W	754.69	AS-DRILLED BORE	



I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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.

(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
 DEGREE OF ACCURACY: 1/200
 PROVEN SURVEY SOURCE OF GRADE GPS
 ELEVATION: (NAVD 88, US FT)

WELL TYPE: OIL WASTE DISPOSAL PRODUCTION DEEP GAS LIQUID INJECTION STORAGE SHALLOW
 WATERSHED: UPPER OHIO SOUTH
 DISTRICT: BUFFALO
 SURFACE OWNER: LINDA REEVES GREATHOUSE
 OIL & GAS ROYALTY OWNER: LINDA REEVES GREATHOUSE
 ACREAGE: ±323.19
 ACREAGE: ±760.60

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

LEGEND:
 PROPOSED SURFACE HOLE / BOTTOM HOLE
 EXISTING / PRODUCING WELLHEAD
 ABANDONED WELL
 PLUGGED & ABANDONED WELL
 CUT CONDUCTOR
 THE LINE
 LEASE BOUNDARY
 500' DHP BUFFER
 PROPOSED DHP
 AS-DRILLED DHP
 ABANDONED PATH

NOTES ON SURVEY:
 1. COORDINATE SYSTEM IS UTM, NAD 83 DATUM.
 2. SURFACE AND ROYALTY OWNER INFORMATION AND ESTABLISHED USING SURVEY GRADE GPS.
 3. THEIR BOUNDARIES SHOWN HEREON WERE PLOTTED FROM DEEDS AND/OR TAX PARCEL MAPS PROVIDED BY CLIENT AND FIELD LOCATIONS. THIS PLAN DOES NOT REPRESENT A BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON.
 4. NO DWELLINGS AND BUILDINGS WITHIN 625 FEET OF PROPOSED OR CENTER OF PAD.
 5. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
 6. NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE LIMITS OF DISTURBANCE.
 7. NO NATURALLY PRODUCING TIGHT STREAM WITHIN 300 FEET OF LIMITS OF DISTURBANCE.

PROPERTY OWNER INFORMATION
 0 2500 2500
 GRAPHIC SCALE IN FEET
 COMPANY: SWN Production Company, LLC
 OPERATOR'S WELL #: 5H
 API WELL #: 47 STATE COUNTY PERMIT
 ELEVATION: ±1139.20 (AS-DRILLED)
 QUADRANGLE: BETHANY, WV
 SURFACE OWNER: LINDA REEVES GREATHOUSE
 OIL & GAS ROYALTY OWNER: LINDA REEVES GREATHOUSE
 ACREAGE: ±323.19
 ACREAGE: ±760.60
 ESTIMATED DEPTH: 5,879' TVD 14,792' TMD

DESIGNATED AGENT: DEE SOUTHAH
 ADDRESS: P.O. BOX 1300
 CITY: JANE LEW STATE: WV ZIP CODE: 26378

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

DESIGNATED AGENT: DEE SOUTHAH
 ADDRESS: P.O. BOX 1300
 CITY: JANE LEW STATE: WV ZIP CODE: 26378

DESIGNATED AGENT: DEE SOUTHAH
 ADDRESS: P.O. BOX 1300
 CITY: JANE LEW STATE: WV ZIP CODE: 26378



RETTEW Associates, Inc.
 27 Travato Street, Suite 101
 Bridgeport, WV 26330
 Phone (800) 738-8395
 Email: rettetw@rettetw.com
 Website: www.rettetw.com

PROPERTY OWNERS
AS-DRILLED

TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
1	LINDA REEVES GREATHOUSE (S)/(R) VICKI LYNN HAMILTON (S)/(R)	03-B37-0087-0000	±323.19
2	JAMES & JO ELLEN HAIZLETT (S)	03-B42-0060-0002	±65.47
3	STEPHEN KOREN (S)/(R)	03-B37-0090-0000	±2.04
4	ROBERT BONE (S)	03-B37-0089-0000	±0.78
5	DEBRA F.-CYPHERT 1/4 (S)/(R) MATTHEW H. FAIR, 1/4, ETAL (S)/(R)	03-B37-0091-0000	±93.93
6	SCHIAPPA & COMPANY INC. (S)	03-B37-0023-0000	±99.91
7	SCHIAPPA & COMPANY INC. (S)/(R)	03-B37-0022-0000	±145.96
8	JAMES W. & DENISE L. MYERS (S)/(R)	03-B37-0014-0000	±5.00
9	HARLEY J. LEMASTERS (S)/(R)	03-B37-0013-0000	±33.54

TRACT	ADJOINING PROPERTY OWNERS	TAX PARCEL	ACRES
A	ROCCO BASIL	03-B42-0019-0000	±100.05
B	RICKEY & DEBRA CONLEY	03-B42-0018-0000	±2.14
C	EDWARD E. & NANCY J. CONLEY	03-B42-0016-0000	±0.74
D	EDWARD E. & NANCY J. CONLEY	03-B42-0015-0000	±3.10
E	DANIEL R. GORBY	03-B42-0026-0000	±1.97
F	DANIEL R. GORBY	03-B42-0003-0000	±5.00
G	SAMUEL M. HALL	03-B42-0001-0000	±18.12
H	VICTOR CHARLES SMITH	03-B37-0130-0000	±27.35
I	CHRISTOPHER SCOTT MILLER	03-B37-0094-0000	±24.20
J	KEVIN CHUMNEY	03-B37-0093-0000	±5.91
K	DONALD G. CONAWAY	03-B37-0092-0000	±3.97
L	WAYNE ALLEN RICHMOND	03-B37-0096-0000	±19.67
M	VICKIE C. & SHEENA R. LOUGHERY	03-B37-0103-0000	±40.00
N	VICKIE C. & SHEENA R. LOUGHERY	03-B37-0041-0000	±41.00
O	RALPH JR & CAROL J. WALNOHA	03-B37-0034-0000	±6.29
P	RALPH JR & CAROL J. WALNOHA	03-B37-0033-0000	±0.80
Q	JAMES W. & LISA GIBSON	03-B37-0028-0000	±4.06
R	HARLEY J. LEMASTERS	03-B37-0021-0000	±31.17
S	THOMAS & CAROLYN CARBASHO	03-B37-0016-0000	±7.29
T	THOMAS W. & CAROLYN L. CARBASHO	03-B37-0015-0000	±5.00
U	MICHAEL MCCLOUD	03-B37-0018-0000	±1.08
V	RONALD D. & JEAN A. TAYLOR	03-B37-0019-0000	±1.08
W	HARLEY J. LEMASTERS	03-B37-0012-0000	±2.00
X	RONALD D. & JEAN A. TAYLOR	03-B37-0011-0000	±11.96
Y	NILA BOYD, CLINTON MCCORD, JOHN JOHN, REBA JOHN, & CAROLYN JONES	03-B32-0145-0000	±29.06
Z	CITY OF WELLSBURG COMBINED WATER & SEWER BOARD	03-B32-0140-0002	±89.58
AA	MARILYN ROSETTA MCCORD	03-B37-0042-0000	±34.26
BB	JOHN A. & BARBARA A. MCCREARY	03-B37-0043-0000	±29.00
CC	VIVIAN LUCILLE MAZZELLA	03-B37-0045-0000	±110.58
DD	WILLIAM E. & HAZEL E. JOHNSTON	03-B37-0050-0000	±166.50
EE	DEBRA CYPHERT & MATTHEW FAIR, ETAL	03-B37-0068-0000	±59.95
FF	BRIAN K. & GINA M. HANEY	03-B37-0077-0000	±45.75
GG	LPS INVESTMENT PARTNERSHIP	03-B37-0066-0000	±65.00
HH	EDGAR S. & CECELIA M. ERDMAN	03-B42-0049-0000	±0.83
II	ELLEN B. SANFORD	03-B37-0076-0000	±66.00
JJ	LABELLE FARMS INC.	03-B42-0060-0000	±349.88
KK	JEFFREY S. & DAWNA J. WARD	03-B42-0059-0004	±98.11
LL	AUSTIN WAYNE & JUSTINE ADAH WADE	03-B42-0050-0000	±4.84
MM	AUSTIN WAYNE & JUSTINE ADAH WADE	03-B42-0060-0001	±0.67
NN	PHYLLIS P. MARKER	03-B42-0052-0000	±91.51

09/15/2017

REVISIONS:	COMPANY:	SWN Production Company, LLC	SWN Production Company™
	OPERATOR'S	LINDA GREATHOUSE BRK	DATE: 12-16-2015
	WELL #:	5H	DRAWN BY: B. HERMAN
	LOCATION:	BUFFALO DISTRICT, BROOKE COUNTY, WEST VIRGINIA	SCALE: N/A DRAWING NO: 087569015 PROPERTY OWNERS