

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

Office of Oil and Gas
AUG 03 2017

WV Department of
Environmental Protection

API 47 - 009 - 00170 County BROOKE District BUFFALO
Quad STEUBENVILLE Pad Name RUSSELL HERVEY-BRK-PAD1 Field/Pool Name PANHANDLE FIELD
Farm name RUSSELL D. HERVEY & LISA K. HERVEY Well Number RUSSELL HERVEY BRK 10H
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 4,456,501.097 Easting 537,713.313
Landing Point of Curve Northing 4,456,492.764 Easting 537,857.197
Bottom Hole Northing 4,453,753.737 Easting 538,764.601

Elevation (ft) 1166' 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 1/15/2016 Date drilling commenced 7/27/2016 Date drilling ceased 8/25/2016
Date completion activities began 4/5/2017 Date completion activities ceased 5/7/2017
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 221' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 881' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 255' Cavern(s) encountered (Y/N) depths N

APPROVED
NAME: Eric Stued
DATE: 9/12/17

Reviewed by: _____

API 47-009 - 00170 Farm name RUSSELL D. HERVEY & LISA K. HERVEY Well number RUSSELL HERVEY BRK 10H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24	20	126	NEW	K-55/94#		Y; 5 BBLS RETURNED
Surface	17.5	13.375	391	NEW	H-40/48#		Y; 17 BBLS RETURNED
Coal	SEE SURFACE						
Intermediate 1	12.25	9.625	2070	NEW	J-55/36#		Y; 41 BBLS RETURNED
Intermediate 2							
Intermediate 3							
Production	8.75/8.50	5.5	15644	NEW	HCP-110/20#		Y
Tubing		2.375	6171	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	150		1.20	180	SURFACE	24
Surface	CLASS A	411	15.60	1.20	493.20	SURFACE	8
Coal	SEE SURFACE						
Intermediate 1	CLASS A	800	15.60	1.20	960	SURFACE	8
Intermediate 2							
Intermediate 3							
Production	CLASS A	810/1990	15.60	1.23/1.19	996.3/2368.10	SURFACE	24
Tubing							

Drillers TD (ft) 15,644' Loggers TD (ft) 15,644'
 Deepest formation penetrated MARCELLUS Plug back to (ft) N/A
 Plug back procedure _____

Kick off depth (ft) 5,221'

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

RECEIVED
Office of Oil and Gas
AUG 03 2017

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 _____

WV Department of
Environmental Protection

API 47- 009 - 00170 Farm name RUSSELL D. HERVEY & LISA K. HERVEY Well number RUSSELL HERVEY BRK 10H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>MARCELLUS</u>	<u>5,874.63</u> TVD	<u>6,112.21'</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1150 psi Bottom Hole _____ psi DURATION OF TEST _____ hrs

OPEN FLOW Gas 1409 mcfpd Oil 205 bpd NGL _____ bpd Water 377 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	
	<u>0</u>		<u>0</u>		
	<u>SEE</u>	<u>ATTACHMENT</u>	<u>3</u>		

Please insert additional pages as applicable.

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

Logging Company NINE ENERGY
Address 16945 NORTHCASE DRIVE, STE 1600 City HOUSTON State TX Zip 77060

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

Stimulating Company KEANE
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 8/2/2017

RUSSELL HERVEY BRK 10H
PERF SUMMARY

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	4/5/2017	15,346	15,510	42
2	4/5/2017	15,107	15,292	42
3	4/5/2017	14,774	15,011	42
4	4/6/2017	14,459	14,680	42
5	4/6/2017	14,162	14,352	42
6	4/6/2017	13,845	14,081	42
7	4/6/2017	13,609	13,767	42
8	4/7/2017	13,279	13,560	42
9	4/7/2017	13,030	13,202	42
10	4/7/2017	12,755	12,952	42
11	4/7/2017	12,465	12,662	42
12	4/8/2017	12,213	12,401	42
13	4/8/2017	11,992	12,150	42
14	4/8/2017	11,702	11,937	42
15	4/8/2017	11,414	11,604	42
16	4/8/2017	11,197	11,352	42
17	4/9/2017	10,982	11,148	42
18	4/9/2017	10,659	10,921	42
19	4/9/2017	10,436	10,611	42
20	4/9/2017	10,215	10,373	42
21	4/9/2017	9,919	10,157	42
22	4/10/2017	9,721	9,866	42
23	4/10/2017	9,475	9,657	42
24	4/10/2017	9,148	9,416	42
25	4/10/2017	8,825	9,060	42
26	4/10/2017	8,511	8,696	42
27	4/11/2017	8,298	8,453	42
28	4/11/2017	8,095	8,250	42
29	4/11/2017	7,883	8,038	42
30	4/11/2017	7,637	7,833	42
31	4/11/2017	7,391	7,546	42
32	4/12/2017	7,195	7,350	42
33	4/12/2017	7,001	7,157	42
34	4/12/2017	6,706	6,945	42
35	4/12/2017	6,473	6,628	42
36	4/13/2017	6,228	6,413	42

RUSSELL HERVEY BRK 10H
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	4/5/2017	97	8,143	8,499	4,229	506,830	9,363	
2	4/5/2017	96	7,939	8,181	4,613	497,600	7,648	
3	4/5/2017	99	7,873	8,117	4,549	500,150	7,636	
4	4/6/2017	101	8,294	8,853	4,033	493,520	7,495	
5	4/6/2017	100	8,372	8,709	4,194	495,420	7,819	
6	4/6/2017	99	8,148	8,519	4,592	498,760	7,458	
7	4/6/2017	96	8,070	8,630	4,402	501,120	7,440	
8	4/7/2017	99	8,524	8,952	4,174	500,440	7,416	
9	4/7/2017	99	8,175	8,932	4,284	495,800	7,437	
10	4/7/2017	99	7,925	8,340	4,756	501,300	7,335	
11	4/7/2017	101	7,887	8,676	4,839	497,740	7,249	
12	4/8/2017	100	7,915	9,084	4,585	504,400	7,262	
13	4/8/2017	100	7,853	8,655	4,478	504,860	7,147	
14	4/8/2017	96	7,351	8,025	4,352	500,630	7,201	
15	4/8/2017	101	7,407	7,810	4,359	499,110	7,191	
16	4/8/2017	100	7,574	8,200	4,413	499,660	7,101	
17	4/9/2017	101	7,619	8,479	4,449	503,400	7,020	
18	4/9/2017	100	7,436	7,843	4,495	496,860	7,100	
19	4/9/2017	100	735	7,592	4,470	499,840	7,151	
20	4/9/2017	100	7,470	7,911	4,874	495,340	6,978	
21	4/9/2017	101	7,312	7,806	4,903	501,060	6,970	
22	4/10/2017	100	7,083	7,748	4,760	500,600	6,905	
23	4/10/2017	101	7,260	7,975	4,814	503,220	6,899	
24	4/10/2017	100	7,157	7,550	4,907	506,020	6,970	
25	4/10/2017	101	6,822	7,281	4,628	502,820	7,097	
26	4/10/2017	101	6,757	6,859	4,610	502,140	7,028	
27	4/11/2017	100	6,726	6,891	4,649	500,940	6,980	
28	4/11/2017	101	6,683	7,027	4,656	503,660	6,876	
29	4/11/2017	100	6,979	7,671	4,728	506,820	6,769	
30	4/11/2017	100	6,688	7,600	4,588	502,080	6,797	
31	4/11/2017	100	6,685	7,521	4,708	501,320	6,740	
32	4/12/2017	100	6,711	7,442	4,492	502,720	7,880	
33	4/12/2017	99	6,649	7,017	4,531	502,440	6,825	
34	4/12/2017	100	6,494	7,256	4,939	501,420	6,664	
35	4/12/2017	100	6,342	7,364	4,578	502,000	6,648	
36	4/13/2017	101	6,603	7,761	4,803	501,320	6,679	

Well Name:**RUSSELL HERVEY BRK 10H**

47009001700000

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	NA	NA	221.00	220.99	
Top of Salt Water	881.00	880.98	NA	NA	
Pittsburgh Coal	255.00	254.99	260.00	259.99	
Big Injun (ss)	1570.00	1569.97	1584.00	1583.97	
Berea (siltstone)	1914.00	1913.97	1932.00	1931.96	
Rhinestreet (shale)	5457.00	5413.42	5616.00	5563.13	
Cashaqua (shale)	5610.00	5557.77	5676.60	5616.65	
Middlesex (shale)	5676.60	5616.65	5745.82	5673.56	
Burket (shale)	5745.82	5673.56	5770.00	5691.95	
Tully (ls)	5770.00	5691.95	5855.13	5752.78	
Mahantango (shale)	5855.13	5752.78	6112.21	5874.63	
Marcellus (shale)	6112.21	5874.63	NA	NA	GAS

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/14/2017
Job End Date:	4/28/2017
State:	West Virginia
County:	Brooke
API Number:	47-009-00178-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Russel Hervey BRK 1H
Latitude:	40.25816400
Longitude:	-80.55665000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	5,879
Total Base Water Volume (gal):	7,380,142
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	82.11493	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	16.63671	
HCL Acid (12.6%-17.5%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.40000	0.98314	
			Hydrogen Chloride	7647-01-0	17.50000	0.22858	
WFRA-2000	U.S. Well Services, LLC	Friction Reducer	2-Propenoic acid, polymer with 2 propenamide	29003-06-9	30.00000	0.01973	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01618	
AI-303	U.S. Well Services, LLC	Acid Corrosion Inhibitors	Ethylene glycol	107-21-1	40.00000	0.00032	
			Cinnamaldehyde	104-55-2	20.00000	0.00012	
			Formic acid	64-18-6	20.00000	0.00011	
			Butyl cellosolve	111-76-2	20.00000	0.00010	

		Polyether	60828-78-6	10.00000	0.00006
		Acetophenone,thiourea,formaldehyde polymer	68527-49-1	5.00000	0.00003

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)

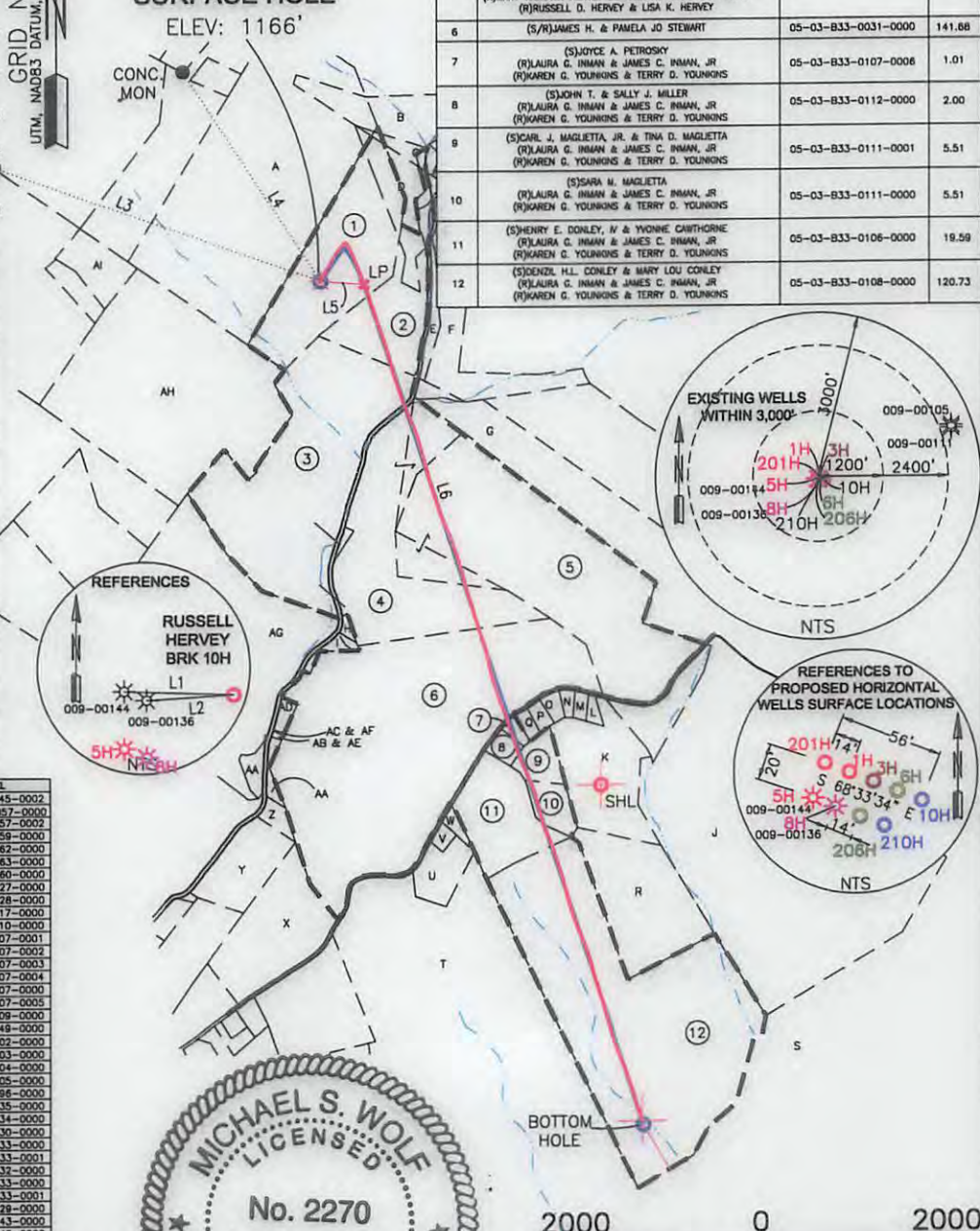


THE THRASHER GROUP, INC.
 600 WHITE OAKS BLVD.
 BRIDGEPORT, WV 26330
 PHONE 304-624-4108
 NOTES ON SURVEY

- 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 200 FEET OF LIMITS OF DISTURBANCE.

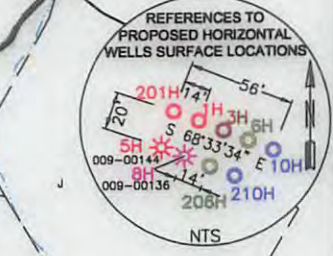
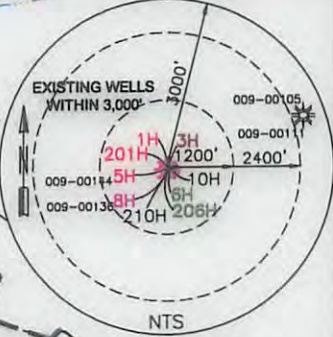
LINE	BEARING	DISTANCE	DESCRIPTION	MONUMENT	TRACT	SURFACE OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL	ACRES
L1	N 88°16'15" W	58.77'	SHL TO SH	EXISTING WELL HEAD	1	(S)RUSSELL D. HERVEY (R) RUSSELL D. HERVEY & LISA K. HERVEY	05-03-828-0045-0000	37.84
L2	S 86°16'50" W	48.81'	SHL TO BH	EXISTING WELL HEAD	2	(S)BROOKE COUNTY PARK COMMISSION (R)WYOMING GET ASBLIT (R)WYN GIST LEVIN	05-03-828-0084-0000	135.00
L3	N 70°38'16" W	3718.41'	SHL TO LANDMARK	IRF FOUND	3	(S/R)STARVAGGI INDUSTRIES	05-03-833-0025-0000	81.23
L4	N 33°14'15" W	2687.41'	SHL TO LANDMARK	CONCRETE MONUMENT	4	(S)STARVAGGI INDUSTRIES (R)JAMES ROBERT HERVEY & KAREN L. HERVEY (R)WILLIAM JUDDSON HERVEY II & THERESA J. HERVEY (R)FRED L. HERVEY & CATHY JO HERVEY (R)MARY KATHRYN HERVEY DEGARMO & ALAN H. DEGARMO (R)RUSSELL D. HERVEY & LISA K. HERVEY	05-03-833-0026-0000	53.59
L5	S 86°41'07" E	472.85'	SHL TO LP	LANDING POINT	5	(S)PHOENIX-GREENLAWN PARTNERS (R)JAMES ROBERT HERVEY & KAREN L. HERVEY (R)WILLIAM JUDDSON HERVEY II & THERESA J. HERVEY (R)FRED L. HERVEY & CATHY JO HERVEY (R)MARY KATHRYN HERVEY DEGARMO & ALAN H. DEGARMO (R)RUSSELL D. HERVEY & LISA K. HERVEY	05-03-833-0113-0000	101.55
L6	S 18°19'46" E	9468.58'	LP TO BHL	BOTTOM HOLE	6	(S/R)JAMES H. & PAMELA JO STEWART	05-03-833-0031-0000	141.68
					7	(S)JOYCE A. PETROSIY (R)LAURA G. INMAN & JAMES C. INMAN, JR (R)KAREN G. YOUNKINS & TERRY D. YOUNKINS	05-03-833-0107-0006	1.01
					8	(S)JOHN T. & SALLY J. MILLER (R)LAURA G. INMAN & JAMES C. INMAN, JR (R)KAREN G. YOUNKINS & TERRY D. YOUNKINS	05-03-833-0112-0000	2.00
					9	(S)CHR. J. MAGLIETTA, JR. & TINA D. MAGLIETTA (R)LAURA G. INMAN & JAMES C. INMAN, JR (R)KAREN G. YOUNKINS & TERRY D. YOUNKINS	05-03-833-0111-0001	5.51
					10	(S)SARA M. MAGLIETTA (R)LAURA G. INMAN & JAMES C. INMAN, JR (R)KAREN G. YOUNKINS & TERRY D. YOUNKINS	05-03-833-0111-0000	5.51
					11	(S)HENRY E. DONLEY, IV & YVONNE CANTHORNE (R)LAURA G. INMAN & JAMES C. INMAN, JR (R)KAREN G. YOUNKINS & TERRY D. YOUNKINS	05-03-833-0106-0000	19.59
					12	(S)DENZIL H.L. CONLEY & MARY LOU CONLEY (R)LAURA G. INMAN & JAMES C. INMAN, JR (R)KAREN G. YOUNKINS & TERRY D. YOUNKINS	05-03-833-0108-0000	120.73

SWN PRODUCTION COMPANY, LLC
"RUSSELL HERVEY BRK 10H"
SURFACE HOLE
 ELEV: 1166'



SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,456,501.097 EASTING: 537,713.313
LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,456,492.764 EASTING: 537,857.197
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,453,753.737 EASTING: 538,764.601
SURFACE HOLE LOCATION (SHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,456,501.097 EASTING: 537,713.313
LANDING POINT LOCATION (LPL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,456,451.936 EASTING: 537,870.623
BOTTOM HOLE LOCATION (BHL): UTM (NAD83, ZONE 17, METERS): NORTHING: 4,453,741.911 EASTING: 538,767.304

TRACT	ADJOINER	PARCEL
A	WILLIAM JUDDSON HERVEY, III	05-03-828-0045-0002
B	DONALD M. AND JANICE F. EATON	05-03-828-0057-0000
C	BERNARD J. KNORR, III AND NICOLE C. KNORR	05-03-828-0057-0002
D	BERNARD J. KNORR, III AND NICOLE C. KNORR	05-03-828-0059-0000
E	STARVAGGI INDUSTRIES	05-03-828-0062-0000
F	STARVAGGI INDUSTRIES	05-03-828-0063-0000
G	BROOKE COUNTY PARK COMMISSION	05-03-828-0060-0000
H	STELLA MERWICK	05-03-833-0027-0000
I	THEODORE E. AND MELISSA A. EATON	05-03-833-0028-0000
J	BARBARA A. WALES	05-03-834-0017-0000
K	BARBARA A. WALES	05-03-833-0110-0000
L	CHARLES L. AND LAURA J. MCGOWAN	05-03-833-0107-0001
M	CHARLES L. AND LAURA J. MCGOWAN	05-03-833-0107-0002
N	CHARLES L. AND LAURA J. MCGOWAN	05-03-833-0107-0003
O	CHARLES L. AND LAURA J. MCGOWAN	05-03-833-0107-0004
P	DON KOSCEVIC, ET AL	05-03-833-0107-0000
Q	JAMIE D. BURNS	05-03-833-0107-0005
R	MARLENE K. HUKILL	05-03-833-0109-0000
S	MARK W. OWEN AND VIRGINIA B. KREUTZ	05-03-834-0049-0000
T	CHARLES R. CORBIN, JR., ET AL	05-03-833-0103-0000
U	CHARLES R. CORBIN, JR.	05-03-833-0103-0000
V	CHARLES R. CORBIN, JR. AND MARGARET L. CORBIN	05-03-833-0104-0000
W	MARGARET E. CORBIN	05-03-833-0105-0000
X	MELVIN AND DORIS CULBERTSON	05-03-833-0096-0000
Y	PHOENIX-GREENLAWN PARTNERS, LP	05-03-833-0035-0000
Z	PHOENIX-GREENLAWN PARTNERS, LP	05-03-833-0033-0000
AA	SHARON CUNNINGHAM	05-03-833-0030-0000
BB	DONALD M. AND JANICE F. EATON	05-03-833-0033-0000
CC	SHARON A. CUNNINGHAM	05-03-833-0033-0001
DD	SHARON A. CUNNINGHAM	05-03-833-0032-0000
EE	DONALD M. AND JANICE F. EATON	05-03-833-0033-0000
FF	SHARON A. CUNNINGHAM	05-03-833-0033-0001
GG	PHOENIX-GREENLAWN PARTNERS, LP	05-03-833-0029-0000
HH	MICHAEL WHITCO, ET AL	05-03-828-0043-0000
II	RANDY R. AND PATRICIA J. GRAHAM	05-03-828-0042-0000



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. 2270

<p>(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS</p> <p>WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25034</p>	MINIMUM DEGREE OF ACCURACY: 1/200 PROVEN SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)	COMPANY: SWN Production Company, LLC	OPERATOR'S WELL #: RUSSELL HERVEY BRK 10H
	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"/>	WATERSHED: BUFFALO CREEK DISTRICT: BUFFALO COUNTY: BROOKE	API WELL #: 47 009 00170 STATE COUNTY PERMIT
DRILL <input checked="" type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input checked="" type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/>	CONVERT <input type="checkbox"/> PLUG & ABANDON <input type="checkbox"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE <input checked="" type="checkbox"/> (SPECIFY) AS-DRILLED	TARGET FORMATION: MARCELLUS	ESTIMATED DEPTH: 6,044' TVD 15,644' TMD
WELL OPERATOR: SWN PRODUCTION COMPANY, LLC ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378	DESIGNATED AGENT: DEE SOUTHALL ADDRESS: P.O. BOX 1300 CITY: JANE LEW STATE: WV ZIP CODE: 26378	REVISIONS:	DATE: 06-27-2017
LEGEND: ○ PROPOSED SURFACE HOLE / BOTTOM HOLE ✖ EXISTING / PRODUCING WELLHEAD ✖ ABANDONED WELL ✖ PLUGGED & ABANDONED WELL △ CUT CONDUCTOR	--- LEASE BOUNDARY --- AS-DRILLED PATH --- PROPOSED PATH --- ABANDONED PATH	DRAWN BY: R.DOERR SCALE: 1" = 2000' DRAWING NO: 050-5495 WELL LOCATION PLAT	PROPERTY NUMBER 2501163270 PAD ID 3001156180

THRASHER

THE THRASHER GROUP, INC.
600 WHITE OAK BLVD.
BRIDGEPORT, VA 26330
PHONE 304-624-4108
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 825 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 TIGHT STREAM WITHIN 200 FEET OF LIMITS OF DISTURBANCE.

SURFACE HOLE LOCATION (SHL)	UTM (NAD83, ZONE 17 METERS): NORTHING: 4456,501.097 EASTING: 537,713.213
LANDING POINT LOCATION (LPL)	UTM (NAD83, ZONE 17 METERS): NORTHING: 4456,482.764 EASTING: 537,857.192
BOTTOM HOLE LOCATION (BHL)	UTM (NAD83, ZONE 17 METERS): NORTHING: 4453,253.737 EASTING: 538,784.801
SURFACE HOLE LOCATION (SHL)	UTM (NAD83, ZONE 17 METERS): NORTHING: 4456,501.097 EASTING: 537,713.213
LANDING POINT LOCATION (LPL)	UTM (NAD83, ZONE 17 METERS): NORTHING: 4456,451.936 EASTING: 537,870.823
BOTTOM HOLE LOCATION (BHL)	UTM (NAD83, ZONE 17 METERS): NORTHING: 4453,241.911 EASTING: 538,787.304

ACROSS	ADJACENT
02-07-82-001-0000	WILLIAM RUSSELL HERVEY, III
02-07-82-002-0000	DOUGLAS AND JANE EATON
02-07-82-003-0000	BERNARD T. HICKER, III AND NICOLE C. HICKER
02-07-82-004-0000	BERNARD T. HICKER, III AND NICOLE C. HICKER
02-07-82-005-0000	STANAVOJ INDUSTRIES
02-07-82-006-0000	STANAVOJ INDUSTRIES
02-07-82-007-0000	BROCK COUNTY PARK COMMISSION
02-07-82-008-0000	SITELLA MERRICK
02-07-82-009-0000	THEODORE E. AND WALTER A. EATON
02-07-82-010-0000	BARBARA A. WATLES
02-07-82-011-0000	CHARLES J. AND LUCIA J. MCCORMAN
02-07-82-012-0000	CHARLES J. AND LUCIA J. MCCORMAN
02-07-82-013-0000	CHARLES J. AND LUCIA J. MCCORMAN
02-07-82-014-0000	CHARLES J. AND LUCIA J. MCCORMAN
02-07-82-015-0000	DON ROSECRANCE, ET AL
02-07-82-016-0000	JAMES D. BURNE
02-07-82-017-0000	MARLENE K. HINDLITZ
02-07-82-018-0000	MARK W. OWEN AND RICHARD B. KREUTZ
02-07-82-019-0000	CHARLES R. COBBIN, JR. ET AL
02-07-82-020-0000	CHARLES R. COBBIN, JR.
02-07-82-021-0000	CHARLES R. COBBIN, JR. AND MARGARET J. COBBIN
02-07-82-022-0000	MARGARET J. COBBIN
02-07-82-023-0000	MELVIN AND DORIS CLEVERSON
02-07-82-024-0000	PHILIPPE-GREGLER PARTNERS, LP
02-07-82-025-0000	PHILIPPE-GREGLER PARTNERS, LP
02-07-82-026-0000	SHARON CHAMBERLAIN
02-07-82-027-0000	SHARON A. CHAMBERLAIN
02-07-82-028-0000	SHARON A. CHAMBERLAIN
02-07-82-029-0000	SHARON A. CHAMBERLAIN
02-07-82-030-0000	PHILIPPE-GREGLER PARTNERS, LP
02-07-82-031-0000	PHILIPPE-GREGLER PARTNERS, LP
02-07-82-032-0000	MICHAEL WHITCO, ET AL
02-07-82-033-0000	RANDY R. AND RICHARD J. GRAMM

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P. 2. 2270



OFFICE OF OIL & GAS
801 27TH STREET
CHARLESTON, WV 25304

UNITED STATES TOPOGRAPHIC MAPS
ACCURACY: 1/500
MINIMUM DEGREE OF ACCURACY: 1/500

WVDEP

WELL OPERATOR: SWM PRODUCTION COMPANY, LLC
ADDRESS: P.O. BOX 1300
CITY: JANE LEW STATE: WV ZIP CODE: 26378

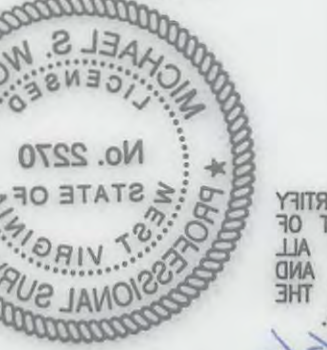
SURFACE OWNER: RUSSELL D. HERVEY
DISTRICT: BUFFALO
WATERSHED: BUFFALO CREEK

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

LEGEND:
 PROPOSED SURFACE HOLE \ BOTTOM HOLE
 EXISTING \ PRODUCING WELLHEAD
 ABANDONED WELL
 PLUGGED & ABANDONED WELL
 CUT CONDUCTOR
 LEASE BOUNDARY
 AS-DRILLED PATH
 PROPOSED PATH
 ABANDONED PATH

"RUSSELL HERVEY BRK COMPANY, LLC 10H" SURFACE HOLE

ELEV: 1166'



OPERATOR'S WELL #:
47

API WELL #:
009 00170

STATE COUNTY PERMIT

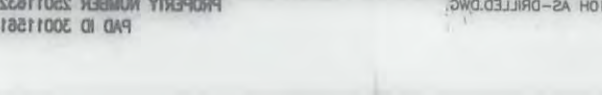
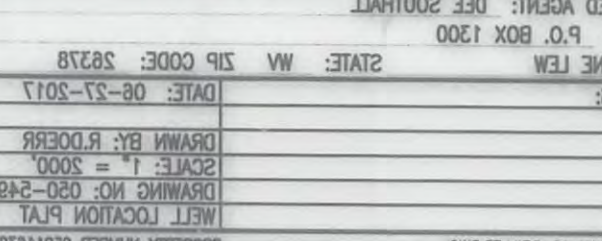
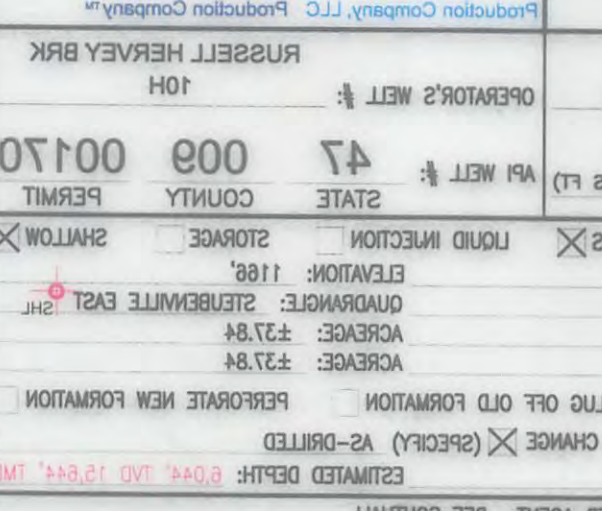
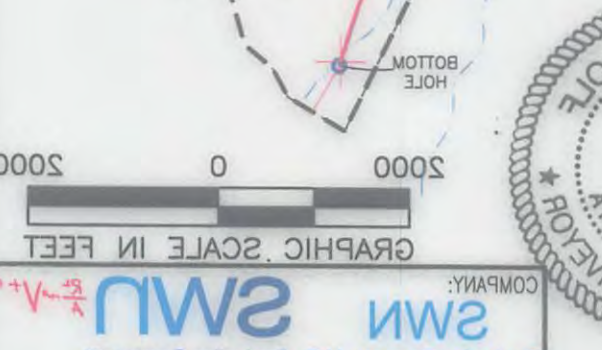
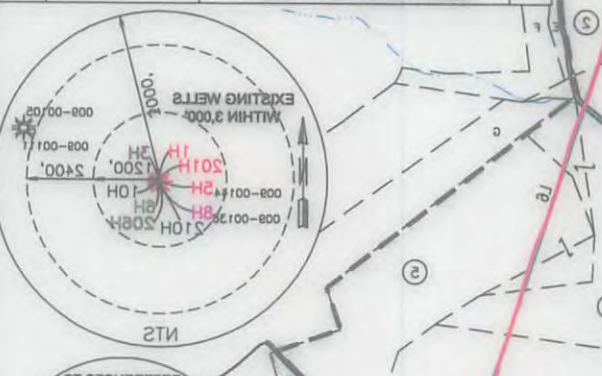
DESIGNATED AGENT: DEE SOUTHAL
ADDRESS: P.O. BOX 1300
CITY: JANE LEW STATE: WV ZIP CODE: 26378

REVISIONS:

DATE: 08-27-2017
DRAWN BY: R. DOERR
SCALE: 1" = 2000'
DRAWING NO: 050-2492
WELL LOCATION PLAT

PROPERTY NUMBER 2501183270
PMD ID 2001183270

TRACT	OWNER (S) / ROYALTY OWNER (R)	TAX PARCEL
1	(R) RUSSELL D. HERVEY & LISA K. HERVEY	02-07-82-001-0000
2	(R) RUSSELL D. HERVEY & LISA K. HERVEY	02-07-82-002-0000
3	(R) BROCK COUNTY PARK COMMISSION	02-07-82-003-0000
4	(R) STANAVOJ INDUSTRIES	02-07-82-004-0000
5	(R) STANAVOJ INDUSTRIES	02-07-82-005-0000
6	(R) STANAVOJ INDUSTRIES	02-07-82-006-0000
7	(R) STANAVOJ INDUSTRIES	02-07-82-007-0000
8	(R) STANAVOJ INDUSTRIES	02-07-82-008-0000
9	(R) STANAVOJ INDUSTRIES	02-07-82-009-0000
10	(R) STANAVOJ INDUSTRIES	02-07-82-010-0000
11	(R) STANAVOJ INDUSTRIES	02-07-82-011-0000
12	(R) STANAVOJ INDUSTRIES	02-07-82-012-0000
13	(R) STANAVOJ INDUSTRIES	02-07-82-013-0000
14	(R) STANAVOJ INDUSTRIES	02-07-82-014-0000
15	(R) STANAVOJ INDUSTRIES	02-07-82-015-0000
16	(R) STANAVOJ INDUSTRIES	02-07-82-016-0000
17	(R) STANAVOJ INDUSTRIES	02-07-82-017-0000
18	(R) STANAVOJ INDUSTRIES	02-07-82-018-0000
19	(R) STANAVOJ INDUSTRIES	02-07-82-019-0000
20	(R) STANAVOJ INDUSTRIES	02-07-82-020-0000
21	(R) STANAVOJ INDUSTRIES	02-07-82-021-0000
22	(R) STANAVOJ INDUSTRIES	02-07-82-022-0000
23	(R) STANAVOJ INDUSTRIES	02-07-82-023-0000
24	(R) STANAVOJ INDUSTRIES	02-07-82-024-0000
25	(R) STANAVOJ INDUSTRIES	02-07-82-025-0000
26	(R) STANAVOJ INDUSTRIES	02-07-82-026-0000
27	(R) STANAVOJ INDUSTRIES	02-07-82-027-0000
28	(R) STANAVOJ INDUSTRIES	02-07-82-028-0000
29	(R) STANAVOJ INDUSTRIES	02-07-82-029-0000
30	(R) STANAVOJ INDUSTRIES	02-07-82-030-0000
31	(R) STANAVOJ INDUSTRIES	02-07-82-031-0000
32	(R) STANAVOJ INDUSTRIES	02-07-82-032-0000
33	(R) STANAVOJ INDUSTRIES	02-07-82-033-0000
34	(R) STANAVOJ INDUSTRIES	02-07-82-034-0000
35	(R) STANAVOJ INDUSTRIES	02-07-82-035-0000
36	(R) STANAVOJ INDUSTRIES	02-07-82-036-0000
37	(R) STANAVOJ INDUSTRIES	02-07-82-037-0000
38	(R) STANAVOJ INDUSTRIES	02-07-82-038-0000
39	(R) STANAVOJ INDUSTRIES	02-07-82-039-0000
40	(R) STANAVOJ INDUSTRIES	02-07-82-040-0000
41	(R) STANAVOJ INDUSTRIES	02-07-82-041-0000
42	(R) STANAVOJ INDUSTRIES	02-07-82-042-0000
43	(R) STANAVOJ INDUSTRIES	02-07-82-043-0000
44	(R) STANAVOJ INDUSTRIES	02-07-82-044-0000
45	(R) STANAVOJ INDUSTRIES	02-07-82-045-0000
46	(R) STANAVOJ INDUSTRIES	02-07-82-046-0000
47	(R) STANAVOJ INDUSTRIES	02-07-82-047-0000
48	(R) STANAVOJ INDUSTRIES	02-07-82-048-0000
49	(R) STANAVOJ INDUSTRIES	02-07-82-049-0000
50	(R) STANAVOJ INDUSTRIES	02-07-82-050-0000



Latitude: 39°14'27" N
Longitude: 84°20'34" W