

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

API 47-051-01777 County 51- Marshall District 6- Sand Hill
Quad 486- Moundsville Pad Name Betty Schafer MSH Pad1 Field/Pool Name Panhandle
Farm name Betty Jane Schafer Well Number 210
Operator (as registered with the OOG) SWN Production CO., 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 4426810.708 Easting 531105.246
Landing Point of Curve Northing 4426676.766 Easting 531885.235
Bottom Hole Northing 4424409.653 Easting 532929.699

Elevation (ft) 849 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
SOBM

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Date permit issued 05/15/2015 Date drilling commenced 06/24/2015 Date drilling ceased 08/17/2015
Date completion activities began 09/14/2015 Date completion activities ceased 10/05/2015
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 106 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2000 Void(s) encountered (Y/N) depths N
Coal depth(s) ft 360 Cavern(s) encountered (Y/N) depths N

Is coal being mined? Yes No
APPROVED
NAME: Jackie Thornton
DATE: 9/22/16

Reviewed by: _____
10/28/2016

API 47-051 - 01777

Farm name Betty Jane Schafer

Well number 210

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	N	94/F-25		Y, GTS
Surface	17.5	13.375	302	N	54.50/J-55		Y
Coal				N			
Intermediate 1	12.50	9.625	1634	N	40/J-55		Y
Intermediate 2							
Intermediate 3							
Production	8.5/8.75	5.5	16395	N	20/HCP-110		Y
Tubing		2.375	6488	N	P-110		
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	120	120	1.19	143	SURFACE	TOP JOB, GTS
Surface	CLASS A	316	15.6	1.2	379		8
Coal							
Intermediate 1	CLASS A	644	15.55	1.18		SURFACE	
Intermediate 2							
Intermediate 3							
Production	CLASS A	1158/2262	15.6/15.6	1.24/1.19	1435/2692		24
Tubing							

Drillers TD (ft) ¹⁶⁴¹⁶ _____

Loggers TD (ft) ¹⁶⁴¹⁶ _____

Deepest formation penetrated MARCELLUS

Plug back to (ft) _____

Plug back procedure _____

Kick off depth (ft) ⁵⁴⁷⁰ _____

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 _____

SEP 16 2016

1 in the middle and top of the shoe joint, then 1 on the top of the 3rd joint, and then 1 at the top of every 3rd joint to surface.

1 solid body centralizer locked in against the float collar, one solid body centralizer on each joint from the float collar to 30 degrees.

WV Department of Environmental Protection

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 _____

10/28/2016

API 47- 051 - 01777 Farm name Betty Jane Schafer Well number 210

PERFORATION RECORD

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

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
			SEE ATTACHED					

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Please insert additional pages as applicable.

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>MARCELLUS</u>	<u>5992.55</u>	<u>TVD</u>	<u>6299.71</u> <u>MD</u>

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1518 psi Bottom Hole psi DURATION OF TEST NA hrs

OPEN FLOW Gas 1538 mcfpd Oil 30 bpd NGL bpd Water 24 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>		
		SEE ATTACHED			

Please insert additional pages as applicable.

Drilling Contractor SWN DRILLING CO.
Address 10000 Energy Drive City Spring State TX Zip 77389

Logging Company WEATHERFORD US LP
Address 121 HILLPOINTE DR., SUITE 300 City Canonsburg State TX Zip 75317

Cementing Company SCHLUMBERGER OIL FIELD SERVICES and ALLIED OIL AND GAS
Address 1325 S. DAIRY ASHFORD DRIVE City Houston State TX Zip 77016

Stimulating Company BAKER HUGHES
Address 17021 ALDINE WESTFIELD ROAD City Houston State TX Zip 77073

Please insert additional pages as applicable.

Completed by SHELLY BOWEN Telephone 832-796-6237
Signature Shelly Bowen Title SR. REGULATORY ANALYST Date 9/15/16

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

10/28/2016