

Via Federal Express

April 12, 2017

State of West Virginia  
Department of Environmental Protection  
Office of Oil & Gas  
601 57<sup>th</sup> Street  
Charleston, WV 25304

**RE:** SWN Production Company, LLC  
Operator ID: 494512924  
Regulatory Filings: WR-35 & WR-36 Filing

To Whom It May Concern:

Please find enclosed forms WR-35 Well Operator's Report of Well Work and WR-36 Well Operator's Report of Initial Gas-Oil Ratio for the following wells:

Michael Dunn MSH 6H (API 47-051-01563)  
Michael Dunn MSH 8H (API 47-051-01582)  
Michael Dunn MSH 10H (API 47-051-01581)  
Michael Dunn MSH 210H (API 47-051-01600)

Please note these wells were drilled by Chesapeake Appalachia prior to the acquisition by SWN Production Company, LLC on December 23, 2014 and an interim WR-35 was filed.

If you have any questions or require additional information, please contact me via email at [denise\\_grantham@swn.com](mailto:denise_grantham@swn.com) or telephone at (832) 796-6139.

Sincerely,



Denise Grantham  
Regulatory Technician  
West Virginia Division

/dg  
Encl.

10000 Energy Drive  
Spring, TX 77389-4954



The Right People doing the Right Things,  
wisely investing the cash flow from our  
underlying Assets, will create Value+®

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

API 47 - 051 - 01600 County MARSHALL District WEBSTER  
Quad MAJORSVILLE Pad Name MICHAEL DUNN-MSH-PAD1 Field/Pool Name NORTH VICTORY FIELD  
Farm name MICHAEL A. DUNN AND KANDY R. DUNN Well Number MICHAEL DUNN MSH 210H  
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 4,416,445.521 Easting 538,125.883  
Landing Point of Curve Northing 4,416,471.560 Easting 538,736.246  
Bottom Hole Northing 4,414,452.381 Easting 539,662.050

Elevation (ft) 1258' 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 08/09/2016 Date drilling commenced 12/14/2012 Date drilling ceased 03/17/2013  
Date completion activities began 01/10/2017 Date completion activities ceased 02/10/2017  
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 \_\_\_\_\_ Open mine(s) (Y/N) depths \_\_\_\_\_  
Salt water depth(s) ft \_\_\_\_\_ Void(s) encountered (Y/N) depths \_\_\_\_\_  
Coal depth(s) ft \_\_\_\_\_ Cavern(s) encountered (Y/N) depths \_\_\_\_\_  
Is coal being mined in area (Y/N) \_\_\_\_\_

Reviewed by:  
\_\_\_\_\_

API 47-051 - 01600 Farm name MICHAEL A. DUNN AND KANDY R. DUNN Well number MICHAEL DUNN MSH 210H

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							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							
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							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							

Drillers TD (ft) \_\_\_\_\_ Loggers TD (ft) \_\_\_\_\_  
Deepest formation penetrated \_\_\_\_\_ Plug back to (ft) \_\_\_\_\_  
Plug back procedure \_\_\_\_\_

Kick off depth (ft) \_\_\_\_\_

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 \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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 \_\_\_\_\_





MICHAEL DUNN MSH 210H  
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	1/10/2017	98	8,088	8,678	4,389	501,760	7,256	
2	1/10/2017	97	8,210	8,740	4,786	500,080	7,591	
3	1/11/2017	92	8,125	8,778	5,259	500,400	7,524	
4	1/11/2017	91	8,089	8,790	5,126	501,740	7,940	
5	1/11/2017	95	7,911	8,648	5,252	500,860	7,740	
6	1/11/2017	96	800	8,665	5,199	500,600	7,430	
7	1/12/2017	97	7,936	8,197	5,087	500,400	7,557	
8	1/12/2017	97	7,997	8,308	5,252	500,120	7,635	
9	1/12/2017	99	7,862	8,210	4,977	501,820	7,598	
10	1/13/2017	93	8,094	9,120	5,408	499,220	8,829	
11	1/13/2017	94	8,043	8,398	5,613	502,460	7,448	
12	1/13/2017	100	7,830	8,027	5,664	500,160	7,354	
13	1/14/2017	100	8,164	8,874	5,104	500,280	7,179	
14	1/14/2017	99	7,875	8,164	5,319	499,200	7,415	
15	1/14/2017	95	7,796	8,172	5,399	499,400	7,677	
16	1/15/2017	99	7,897	8,112	5,714	500,020	7,420	
17	1/15/2017	99	7,740	7,962	4,935	494,820	7,310	
18	1/15/2017	100	7,712	8,062	5,014	500,200	7,420	
19	1/16/2017	100	7,617	8,001	5,173	498,960	7,377	
20	1/16/2017	98	7,831	8,443	5,274	500,940	7,397	
21	1/16/2017	99	7,902	8,043	5,464	513,100	7,141	
22	1/17/2017	98	7,845	8,072	5,355	500,080	7,317	
23	1/17/2017	99	7,788	8,006	5,298	500,100	7,307	
24	1/18/2017	99	7,562	7,786	5,115	501,920	7,248	
25	1/18/2017	100	7,735	7,949	4,795	500,980	7,162	
26	1/18/2017	100	7,669	7,943	5,107	500,170	7,133	
27	1/19/2017	100	7,708	8,271	5,338	499,530	7,129	
28	1/19/2017	101	7,532	7,787	5,333	501,240	7,085	
29	1/19/2017	100	7,705	7,915	5,199	500,260	7,106	
30	1/20/2017	101	7,514	8,196	5,414	497,200	7,102	
31	1/20/2017	100	7,542	7,880	5,230	498,140	7,134	
32	1/20/2017	100	7,415	7,657	5,262	498,860	7,019	
33	1/20/2017	100	7,502	7,641	5,239	497,920	7,035	
34	1/21/2017	101	7,409	7,803	5,230	498,420	7,122	
35	1/21/2017	100	7,521	8,084	5,206	499,940	6,970	
36	1/21/2017	100	7,623	7,944	4,897	500,180	7,034	
37	1/22/2017	97	7,333	8,853	5,373	498,880	7,380	
38	1/23/2017	98	7,282	7,948	4,977	497,840	7,524	
39	1/24/2017	100	7,313	7,577	5,313	504,420	6,959	
40	1/24/2017	100	7,304	7,575	5,267	503,140	6,954	
41	1/25/2017	100	7,564	8,021	5,472	494,520	8,030	
42	1/25/2017	100	7,246	7,959	5,252	499,200	6,970	
43	1/25/2017	101	7,617	8,280	5,154	501,560	6,880	
44	1/26/2017	100	7,354	7,861	5,313	501,680	7,294	
45	1/26/2017	100	7,418	8,062	5,343	501,040	6,826	
46	1/26/2017	101	7,343	8,039	4,863	499,620	6,841	
47	1/27/2017	100	7,485	7,834	5,218	498,840	6,822	
48	1/27/2017	100	7,387	7,846	5,415	501,140	6,988	
49	1/27/2017	95	7,119	8,703	4,739	499,660	6,724	
50	1/28/2017	94	7,135	8,256	5,276	499,540	6,727	

## MICHAEL DUNN MSH 210H

## PERF SUMMARY

STAGE NUM	Perf Date	Perf Top MD	Perf Bottom MD	# SHOTS PER STG
1	1/10/2017	14,305	14,412	48
2	1/10/2017	14,165	14,272	42
3	1/11/2017	14,025	14,128	42
4	1/11/2017	13,885	13,992	42
5	1/11/2017	13,745	13,852	42
6	1/11/2017	13,605	13,712	42
7	1/12/2017	13,465	13,572	42
8	1/12/2017	13,325	13,432	42
9	1/12/2017	13,185	13,292	42
10	1/13/2017	13,045	13,152	42
11	1/13/2017	12,905	13,012	42
12	1/13/2017	12,765	12,872	42
13	1/14/2017	12,625	12,732	42
14	1/14/2017	12,485	12,592	42
15	1/14/2017	12,345	12,452	42
16	1/15/2017	12,205	12,312	42
17	1/15/2017	12,065	12,172	42
18	1/15/2017	11,925	12,032	42
19	1/16/2017	11,785	11,892	42
20	1/16/2017	11,645	11,752	42
21	1/16/2017	11,505	11,612	42
22	1/17/2017	11,365	11,472	42
23	1/17/2017	11,226	11,332	48
24	1/18/2017	11,085	11,192	48
25	1/18/2017	10,945	11,052	48
26	1/18/2017	10,805	10,912	48
27	1/19/2017	10,665	10,772	48
28	1/19/2017	10,525	10,632	42
29	1/19/2017	10,385	10,492	42
30	1/20/2017	10,245	10,352	42
31	1/20/2017	10,105	10,212	42
32	1/20/2017	9,965	10,072	42
33	1/20/2017	9,825	9,932	42
34	1/21/2017	9,685	9,792	42
35	1/21/2017	9,545	9,652	42
36	1/21/2017	9,405	9,512	42
37	1/22/2017	9,265	9,372	42
38	1/23/2017	9,125	9,232	42
39	1/24/2017	8,985	9,092	42
40	1/24/2017	8,845	8,952	42
41	1/25/2017	8,705	8,812	42
42	1/25/2017	8,565	8,672	42
43	1/25/2017	8,425	8,532	42
44	1/26/2017	8,285	8,392	42
45	1/26/2017	8,145	8,252	42
46	1/26/2017	8,005	8,112	42

MICHAEL DUNN MSH 210H  
PERF SUMMARY

47	1/27/2017	7,865	7,972	42
48	1/27/2017	7,725	7,832	42
49	1/27/2017	7,585	7,692	42
50	1/28/2017	7,445	7,552	42



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/10/2017
Job End Date:	1/28/2017
State:	West Virginia
County:	Marshall
API Number:	47-051-01600-00-00
Operator Name:	Southwestern Energy
Well Name and Number:	Michael Dunn MSH 210H
Latitude:	39.89721900
Longitude:	-80.55402000
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,854
Total Base Water Volume (gal):	15,033,316
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
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	82.18200	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	1.34060	

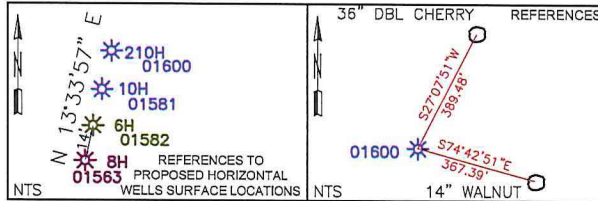
SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant											
						Listed Below							
HYDROCHLORIC ACID	Halliburton	Solvent											
						Listed Below							
SAND-COMMON WHITE - 100 MESH, 3307 LB BAG	Halliburton	Proppant											
						Listed Below							
HAI-150E	Halliburton	Corrosion Inhibitor											
						Listed Below							
Bactron K-219	Nalco Champion Company	Biocide											
						Listed Below							
FDP-S1176-15	Halliburton	Friction Reducer											
						Listed Below							
EC6486A	Nalco Champion Company	Scale Inhibitor											
						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	16.41483							
			Hydrochloric acid	7647-01-0	15.00000	0.19334							
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02585							





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

SURFACE HOLE 3,465'  
Latitude: 39°55'00" BOTTOM HOLE 1,542'



SURFACE HOLE LOCATION (SHL):		
UTM (NAD83, ZONE 17, METERS):		
NORTHING: 4,416,445.521		
EASTING: 538,125.883		
"LANDING POINT" LOCATION (LPL):		
UTM (NAD83, ZONE 17, METERS):		
NORTHING: 4,416,471.560		
EASTING: 538,736.246		
BOTTOM HOLE LOCATION (BHL):		
UTM (NAD83, ZONE 17, METERS):		
NORTHING: 4,414,452.381		
EASTING: 539,662.050		

NUMBER	DIRECTION	DISTANCE
L1	S19°54'42\"/>	

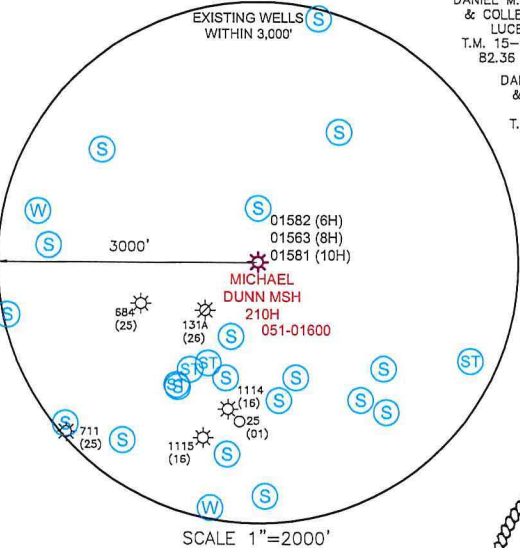
- A--GARY L. MITCHELL & MONA S. MITCHELL 4.258 AC. T.M. 15-12-08
- B--ROBERT WILLIAM BROWN 3.695 AC. T.M. 15-12-07
- C--CONSOL PENNSYLVANIA COAL COMPANY, LLC 4.643 AC. T.M. 15-12-06
- D--HELEN L. DOMAN 48.66 AC. T.M. 15-12-23
- E--WILLIAM B. SCHAFER ET AL. 9.92 AC. T.M. 15-12-10.1
- F--MICHELLE P. NEELY 8.474 AC. T.M. 03-05-04.1
- G--STEVEN L. ROBINSON ET UX 9.4 AC. T.M. 03-05-05.1
- H--LINDA L. MCCrackEN 66.33 AC. T.M. 03-05-09
- I--MILTON E. & LINDA MCCrackEN 3.906 AC. T.M. 03-05-07
- J--MILTON E. & LINDA MCCrackEN 6.0 AC. T.M. 03-05-08

**SURFACE HOLE LOCATION**  
UTM NAD 83 (METERS)--4416444.9 N, 538125.8 E  
**BOTTOM HOLE LOCATION**  
UTM NAD 83 (METERS)--4414451.4 N, 539659.5 E

**LEGEND**

ASDRILLED LEG (RED TEXT)	---
PERMIT LEG (BLUE LEG)	---
WATERWELL	(W)
SPRING	(S)
STREAM	(ST)
SURFACE & ROYALTY OWNER	(S/R)
DIVISION LINES BETWEEN LEASE TRACTS	---
ADJOINERS LINES	---
SURFACE OWNER	(S)

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



SCALE 1"=2000'

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

P.S. 708 *David L Jackson*



- NOTES ON SURVEY
- NO DWELLINGS OR AGRICULTURAL BUILDINGS GREATER THAN 2,500 SQUARE FEET WITHIN 625 FEET OF PROPOSED CENTER OF PAD.
  - NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.
  - ALL WELLS WITHIN 500' OF THE HORIZONTAL LEG ARE SHOWN ON THIS PLAT BASED UPON INFORMATION TAKEN FROM DEP MAPPING, WELL PLATS AND AERIAL PHOTOS.
  - COORDINATES SYSTEM IS UTM, NAD 83 DATUM, ZONE 17, U.S. FOOT AND WELL COORDINATES ESTABLISHED USING SURVEY GRADE GPS.

PLAT SCALE 1"=2000'

COMPANY: **SWN** Production Company, LLC

(+) 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)

MICHAEL DUNN MSH  
OPERATOR'S WELL #: 210H  
API WELL #: 47 051 01600  
STATE COUNTY PERMIT

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

WATERSHED: WILLIAMS RUN OF UPPER OHIO SOUTH ELEVATION: 1,258'

DISTRICT: WEBSTER COUNTY: MARSHALL QUADRANGLE: MAJORSVILLE

SURFACE OWNER: MICHAEL A. DUNN AND KANDY R. DUNN ACREAGE: 108.98

OIL & GAS ROYALTY OWNER: MICHAEL A. DUNN AND KANDY R. DUNN ACREAGE: 108.98

DRILL  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION

CONVERT  PLUG & ABANDON  CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY) ASDRILLED

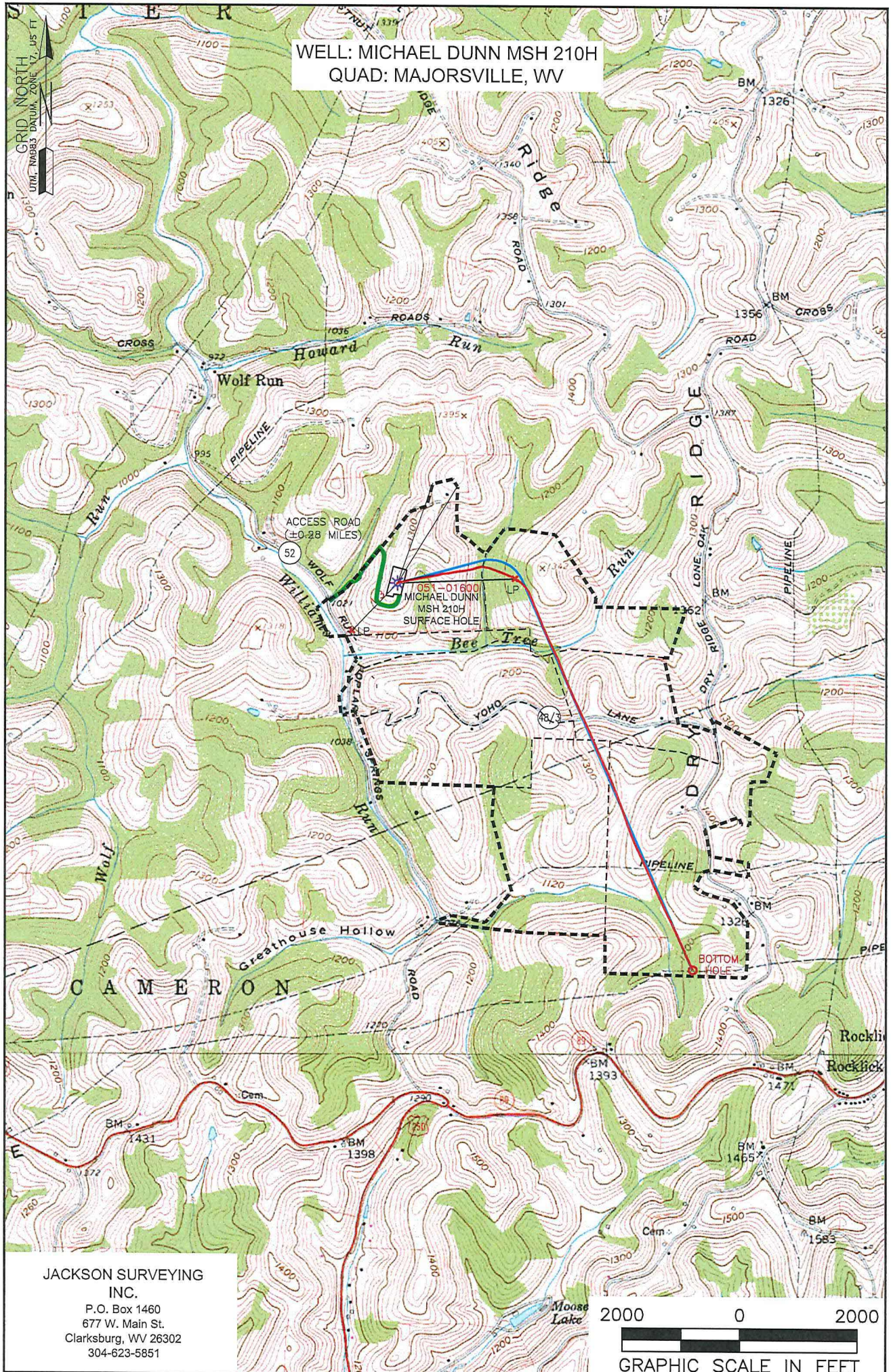
TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,833' TVD 12,987' TMD

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

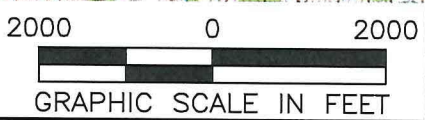
LEGEND:	REVISIONS:	DATE: 07-12-2016
○ PROPOSED SURFACE HOLE / BOTTOM HOLE		
⊙ EXISTING / PRODUCING WELLHEAD		
⊘ ABANDONED WELL	--- LEASE BOUNDARY	DRAWN BY: N. MANO
⊙ PLUGGED & ABANDONED WELL	--- PERMIT DHP	SCALE: 1" = 2000'
△ CUT CONDUCTOR	--- MARCELLUS DHP	DRAWING NO:
	--- ABANDONED PATH	WELL LOCATION PLAT



WELL: MICHAEL DUNN MSH 210H  
 QUAD: MAJORSVILLE, WV



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



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

LEGEND:  
 - - - - - EXTERNAL BOUNDARY

Applicant/Well Operator Name SWN PRODUCTION COMPANY, LLC	Well (Farm) Name MICHAEL DUNN MSH 210H	Well# 210H
Address PO BOX 1300 JANE LEW, WV 26378	County MARSHALL	District WEBSTER
Surface Landowner/ Lessor MICHAEL A. DUNN ET UX	USCS 7 1/2 Quadrangle Map Name MAJORSVILLE	



**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 Designated Agent \_\_\_\_\_  
Address PO BOX 12359 Address \_\_\_\_\_  
SPRING, TX 77391-2359 \_\_\_\_\_

Geological Target Formation: MARCELLUS Depth 7349.84MD/6811.79TVD feet  
Perforation Interval 7,445' / 14,412' MD 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 BBLs	Gas Production During Test MCF	Water Production During Test BBls -Salinity		
Oil Gravity API	Producing Method (flowing, pumping, gas lift etc.)			

**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 13
Differential Pressure range	Max. Static pressure range	Prover and Orifice diameter - inches
Differential		Static
Gas Gravity (Air = 1.0) Measured Estimated	Flowing Temperature	Gas Temperature
24 Hour Coefficient	24 Hour coefficient pressure PSIA	

**TEST RESULTS**

Daily Oil 1.8 BBLs	Daily Water 636.6 BBLs	Daily Gas 3,553 MCF	Gas-Oil Ratio
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*Denise Grantham*  
Well Operator

BY DENISE GRANTHAM

ITS: DESIGNATED REPRESENTATIVE