

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

**RECEIVED**  
**Office of Oil and Gas**  
**APR 18 2017**

**WV Department of Environmental Protection**

API 47-051-01581 County MARSHALL District WEBSTER  
Quad MAJORSVILLE Pad Name MICHAEL DUNN-MSH-PAD1 Field/Pool Name NORTH WOODRIFIELD  
Farm name MICHAEL A DUNN AND KANDY R DUNN Well Number MICHAEL DUNN MSH 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 4,416,441.005 Easting 538,124.758  
Landing Point of Curve Northing 4,416,362.936 Easting 538,395.296  
Bottom Hole Northing 4,414,473.346 Easting 539,312.335

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 02/24/2013  
Date completion activities began 12/06/2016 Date completion activities ceased 02/07/2017  
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:  
11/12/2021

API 47- 051 - 01581 Farm name MICHAEL A DUNN AND KANDY R DUNN Well number MICHAEL DUNN MSH 10H

| CASING STRINGS            | Hole Size | Casing Size | Depth | New or Used | Grade wt/ft | Basket Depth(s) | Did cement circulate (Y/ N)<br>* 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 10H  
PERF SUMMARY

| STAGE NUM | Perf Date  | Perf Top MD | Perf Bottom MD | # SHOTS PER STG |
|-----------|------------|-------------|----------------|-----------------|
| 1         | 12/6/2016  | 14,001      | 14,078         | 42              |
| 2         | 12/6/2016  | 13,861      | 13,968         | 42              |
| 3         | 12/8/2016  | 13,721      | 13,828         | 42              |
| 4         | 12/8/2016  | 13,581      | 13,688         | 42              |
| 5         | 12/9/2016  | 13,441      | 13,548         | 42              |
| 6         | 12/9/2016  | 13,301      | 13,408         | 42              |
| 7         | 12/9/2016  | 13,161      | 13,268         | 42              |
| 8         | 12/11/2016 | 13,021      | 13,121         | 42              |
| 9         | 12/11/2016 | 12,881      | 12,988         | 42              |
| 10        | 12/11/2016 | 12,741      | 12,848         | 42              |
| 11        | 12/12/2016 | 12,601      | 12,704         | 42              |
| 12        | 12/12/2016 | 12,461      | 12,566         | 42              |
| 13        | 12/13/2016 | 12,321      | 12,428         | 42              |
| 14        | 12/13/2016 | 12,181      | 12,288         | 42              |
| 15        | 12/14/2016 | 12,041      | 12,148         | 42              |
| 16        | 12/14/2016 | 11,901      | 12,008         | 42              |
| 17        | 12/15/2016 | 11,761      | 11,868         | 42              |
| 18        | 12/15/2016 | 11,621      | 11,728         | 42              |
| 19        | 12/16/2016 | 11,481      | 11,588         | 42              |
| 20        | 12/16/2016 | 11,341      | 11,448         | 42              |
| 21        | 12/17/2016 | 11,201      | 11,308         | 42              |
| 22        | 12/17/2016 | 11,061      | 11,168         | 42              |
| 23        | 12/18/2016 | 10,921      | 11,028         | 48              |
| 24        | 12/19/2016 | 10,781      | 10,888         | 48              |
| 25        | 12/19/2016 | 10,641      | 10,748         | 48              |
| 26        | 12/19/2016 | 10,501      | 10,608         | 48              |
| 27        | 12/20/2016 | 10,361      | 10,468         | 48              |
| 28        | 12/19/2016 | 10,221      | 10,328         | 42              |
| 29        | 12/20/2016 | 10,081      | 10,188         | 42              |
| 30        | 12/21/2016 | 9,941       | 10,048         | 42              |
| 31        | 12/21/2016 | 9,801       | 9,908          | 42              |
| 32        | 12/22/2016 | 9,661       | 9,768          | 42              |
| 33        | 12/22/2016 | 9,521       | 9,628          | 42              |
| 34        | 12/27/2016 | 9,381       | 9,488          | 42              |
| 35        | 12/27/2016 | 9,241       | 9,348          | 42              |
| 36        | 12/28/2016 | 9,101       | 9,208          | 42              |
| 37        | 12/28/2016 | 8,961       | 9,068          | 42              |
| 38        | 12/28/2016 | 8,821       | 8,928          | 42              |
| 39        | 12/28/2016 | 8,681       | 8,788          | 42              |
| 40        | 12/29/2016 | 8,541       | 8,648          | 42              |
| 41        | 12/29/2016 | 8,401       | 8,508          | 42              |
| 42        | 12/29/2016 | 8,261       | 8,368          | 42              |
| 43        | 12/30/2016 | 8,121       | 8,228          | 42              |
| 44        | 12/30/2016 | 7,986       | 8,088          | 42              |
| 45        | 12/30/2016 | 7,839       | 7,948          | 42              |
| 46        | 12/31/2016 | 7,700       | 7,808          | 42              |

11/12/2021

MICHAEL DUNN MSH 10H  
PERF SUMMARY

|    |            |       |       |    |
|----|------------|-------|-------|----|
| 47 | 12/31/2016 | 7,561 | 7,668 | 42 |
| 48 | 12/31/2016 | 7,421 | 7,528 | 42 |
| 49 | 1/1/2017   | 7,281 | 7,388 | 42 |
| 50 | 1/1/2017   | 7,141 | 7,248 | 42 |

MICHAEL DUNN MSH 10H  
FRAC STAGE SUMMARY

| STAGE<br>NUM | Stim Date  | Ave Pump<br>Rate (BPM) | Ave Treatment<br>Pressure (PSI) | Max Breakdown<br>Pressure (PSI) | ISIP (PSI) | Amount of<br>Proppant (lbs) | Amount of<br>water bbls | Amount of<br>nitrogen/other |
|--------------|------------|------------------------|---------------------------------|---------------------------------|------------|-----------------------------|-------------------------|-----------------------------|
| 1            | 12/6/2016  | 95                     | 7,834                           | 8,871                           | 4,817      | 496,360                     | 7,274                   |                             |
| 2            | 12/6/2016  | 94                     | 8,101                           | 9,007                           | 5,054      | 498,120                     | 7,711                   |                             |
| 3            | 12/8/2016  | 90                     | 7,791                           | 8,501                           | 5,237      | 492,400                     | 7,403                   |                             |
| 4            | 12/8/2016  | 78                     | 8,155                           | 8,816                           | 4,903      | 498,320                     | 10,623                  |                             |
| 5            | 12/9/2016  | 94                     | 7,470                           | 9,200                           | 5,500      | 503,300                     | 7,863                   |                             |
| 6            | 12/9/2016  | 99                     | 7,823                           | 8,263                           | 5,112      | 499,560                     | 7,768                   |                             |
| 7            | 12/9/2016  | 96                     | 8,001                           | 8,482                           | 5,294      | 500,560                     | 9,883                   |                             |
| 8            | 12/11/2016 | 94                     | 8,166                           | 8,424                           | 4,743      | 502,760                     | 7,516                   |                             |
| 9            | 12/11/2016 | 95                     | 8,086                           | 8,501                           | 5,174      | 512,060                     | 8,608                   |                             |
| 10           | 12/11/2016 | 95                     | 8,020                           | 8,755                           | 4,949      | 500,080                     | 7,994                   |                             |
| 11           | 12/12/2016 | 95                     | 8,070                           | 8,362                           | 4,845      | 501,840                     | 7,392                   |                             |
| 12           | 12/12/2016 | 99                     | 7,947                           | 8,312                           | 5,274      | 501,180                     | 7,743                   |                             |
| 13           | 12/13/2016 | 99                     | 7,786                           | 8,276                           | 5,108      | 500,220                     | 7,307                   |                             |
| 14           | 12/13/2016 | 100                    | 7,749                           | 8,233                           | 5,823      | 500,140                     | 7,096                   |                             |
| 15           | 12/14/2016 | 101                    | 8,020                           | 8,656                           | 5,731      | 500,060                     | 11,077                  |                             |
| 16           | 12/14/2016 | 100                    | 8,042                           | 8,462                           | 4,993      | 499,040                     | 7,323                   |                             |
| 17           | 12/15/2016 | 99                     | 7,990                           | 8,591                           | 5,137      | 503,460                     | 9,988                   |                             |
| 18           | 12/15/2016 | 98                     | 8,008                           | 8,452                           | 5,014      | 508,200                     | 7,146                   |                             |
| 19           | 12/16/2016 | 98                     | 8,073                           | 8,510                           | 5,115      | 501,280                     | 7,265                   |                             |
| 20           | 12/16/2016 | 97                     | 7,885                           | 8,539                           | 5,068      | 500,320                     | 8,119                   |                             |
| 21           | 12/17/2016 | 93                     | 7,900                           | 9,199                           | 5,730      | 499,860                     | 10,353                  |                             |
| 22           | 12/17/2016 | 15                     | 8,624                           | 9,287                           | 4,615      | 13,820                      | 3,097                   |                             |
| 23           | 12/18/2016 | 99                     | 7,288                           | 7,741                           | 5,371      | 434,940                     | 9,242                   |                             |
| 24           | 12/19/2016 | 95                     | 7,285                           | 7,555                           | 5,028      | 500,120                     | 7,383                   |                             |
| 25           | 12/19/2016 | 100                    | 7,424                           | 8,470                           | 4,700      | 500,580                     | 7,662                   |                             |
| 26           | 12/19/2016 | 94                     | 7,379                           | 7,856                           | 4,920      | 500,100                     | 7,179                   |                             |
| 27           | 12/20/2016 | 100                    | 7,458                           | 8,095                           | 4,703      | 500,372                     | 7,245                   |                             |
| 28           | 12/19/2016 | 100                    | 7,566                           | 8,377                           | 4,665      | 494,160                     | 7,031                   |                             |
| 29           | 12/20/2016 | 100                    | 7,549                           | 7,813                           | 4,829      | 483,040                     | 7,041                   |                             |
| 30           | 12/21/2016 | 100                    | 7,643                           | 7,930                           | 4,858      | 501,220                     | 7,374                   |                             |
| 31           | 12/21/2016 | 100                    | 7,668                           | 7,832                           | 5,535      | 498,000                     | 7,291                   |                             |
| 32           | 12/22/2016 | 100                    | 7,676                           | 8,914                           | 5,054      | 499,820                     | 7,486                   |                             |
| 33           | 12/22/2016 | 100                    | 7,555                           | 7,882                           | 4,997      | 500,260                     | 7,148                   |                             |
| 34           | 12/27/2016 | 101                    | 7,627                           | 8,359                           | 5,462      | 503,220                     | 7,249                   |                             |
| 35           | 12/27/2016 | 98                     | 7,486                           | 7,628                           | 5,014      | 501,720                     | 7,238                   |                             |
| 36           | 12/28/2016 | 101                    | 7,649                           | 8,084                           | 5,097      | 504,920                     | 7,078                   |                             |
| 37           | 12/28/2016 | 99                     | 7,482                           | 7,734                           | 4,852      | 500,920                     | 7,144                   |                             |
| 38           | 12/28/2016 | 100                    | 7,407                           | 7,686                           | 5,462      | 500,020                     | 7,131                   |                             |
| 39           | 12/28/2016 | 100                    | 7,490                           | 8,015                           | 5,051      | 497,080                     | 7,073                   |                             |
| 40           | 12/29/2016 | 100                    | 7,522                           | 8,760                           | 4,667      | 500,420                     | 6,941                   |                             |
| 41           | 12/29/2016 | 101                    | 7,445                           | 7,972                           | 4,879      | 500,480                     | 7,033                   |                             |
| 42           | 12/29/2016 | 100                    | 7,636                           | 9,675                           | 5,115      | 463,940                     | 10,334                  |                             |
| 43           | 12/30/2016 | 99                     | 7,485                           | 8,137                           | 4,910      | 498,880                     | 7,564                   |                             |
| 44           | 12/30/2016 | 100                    | 7,426                           | 8,707                           | 4,892      | 499,980                     | 6,817                   |                             |
| 45           | 12/30/2016 | 100                    | 7,196                           | 7,531                           | 5,218      | 501,800                     | 7,048                   |                             |
| 46           | 12/31/2016 | 99                     | 7,391                           | 8,331                           | 5,205      | 502,420                     | 7,198                   |                             |
| 47           | 12/31/2016 | 100                    | 7,235                           | 7,581                           | 5,379      | 501,560                     | 6,958                   |                             |
| 48           | 12/31/2016 | 100                    | 7,386                           | 7,892                           | 5,048      | 500,100                     | 6,752                   |                             |
| 49           | 1/1/2017   | 100                    | 7,157                           | 8,425                           | 5,120      | 497,800                     | 6,867                   |                             |
| 50           | 1/1/2017   | 101                    | 7,316                           | 7,619                           | 5,376      | 500,100                     | 6,666                   |                             |

11/12/2021

# Hydraulic Fracturing Fluid Product Component Information Disclosure

|                                |                      |
|--------------------------------|----------------------|
| Job Start Date:                | 12/6/2016            |
| Job End Date:                  | 1/2/2017             |
| State:                         | West Virginia        |
| County:                        | Marshall             |
| API Number:                    | 47-051-01581-08-00   |
| Operator Name:                 | Southwestern Energy  |
| Well Name and Number:          | Michael Dunn MSH 10H |
| Latitude:                      | 39.89715000          |
| Longitude:                     | -80.55402000         |
| Datum:                         | NAD27                |
| Federal Well:                  | NO                   |
| Indian Well:                   | NO                   |
| True Vertical Depth:           | 6,879                |
| Total Base Water Volume (gal): | 15,699,292           |
| 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  | 83.08569   | Density = 8.330 |
| Ingredients | Listed Above | Listed Above |             |  |  |  |                 |
|             |              |              | Water       | 7732-18-5                                | 100.00000  | 1.29501  |                 |



|  |                                |                        |                            |             |              |           |  |          |  |
|--|--------------------------------|------------------------|----------------------------|-------------|--------------|-----------|--|----------|--|
| EC6486A  | Naico Champion                 | Scale Inhibitor        |                            |             |              |           |  |          |  |
|  |                                |                        |                            |             | Listed Below |           |  |          |  |
| 15% HCl Acid   | Halliburton                    | Solvent                |                            |             |              |           |  |          |  |
|  |                                |                        |                            |             | Listed Below |           |  |          |  |
| FDP-S1176-15   | Halliburton<br>Energy Services | Friction Reducer       |                            |             |              |           |  |          |  |
|  |                                |                        |                            |             | Listed Below |           |  |          |  |
| HAI-150E   | Halliburton                    | Corrosion<br>Inhibitor |                            |             |              |           |  |          |  |
|  |                                |                        |                            |             | Listed Below |           |  |          |  |
| SAND-<br>PREMIUM<br>WHITE-40/70,<br>BULK   | Halliburton                    | Proppant               |                            |             |              |           |  |          |  |
|  |                                |                        |                            |             | Listed Below |           |  |          |  |
| Bactron K-219  | Naico Champion                 | Biocide                |                            |             |              |           |  |          |  |
|  |                                |                        |                            |             | Listed Below |           |  |          |  |
| SAND-COMMON<br>WHITE - 100<br>MESH, 3307 LB<br>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 |  | 15.51543 |  |
|  |                                |                        | Hydrochloric acid          | 7647-01-0   |              | 15.00000  |  | 0.19425  |  |
|  |                                |                        | Polyacrylate               | Proprietary |              | 30.00000  |  | 0.02261  |  |

|  |  |  |   |             |           |         |  |
|--|--|--|---|-------------|-----------|---------|--|
|  |  |  | Hydrotreated light petroleum distillate           | 64742-47-8  | 30.00000  | 0.02261 |  |
|  |  |  | Methanol  | 67-56-1     | 60.00000  | 0.01391 |  |
|  |  |  | Benzyl-(C12-C16 Alkyl)-Dimethyl-Ammonium Chloride | 68424-85-1  | 30.00000  | 0.00695 |  |
|  |  |  | Glutaraldehyde                                    | 111-30-8    | 10.00000  | 0.00232 |  |
|  |  |  | Amine Triphosphate                                | Proprietary | 30.00000  | 0.00155 |  |
|  |  |  | Ethylene Glycol                                   | 107-21-1    | 30.00000  | 0.00155 |  |
|  |  |  | Non-hazardous food substance                      | Proprietary | 100.00000 | 0.00015 |  |

\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

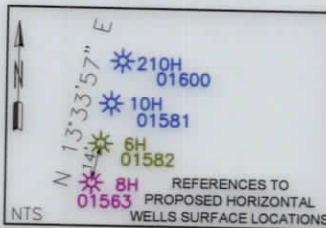
\*\*\* If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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)

**JACKSON SURVEYING INC.**

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



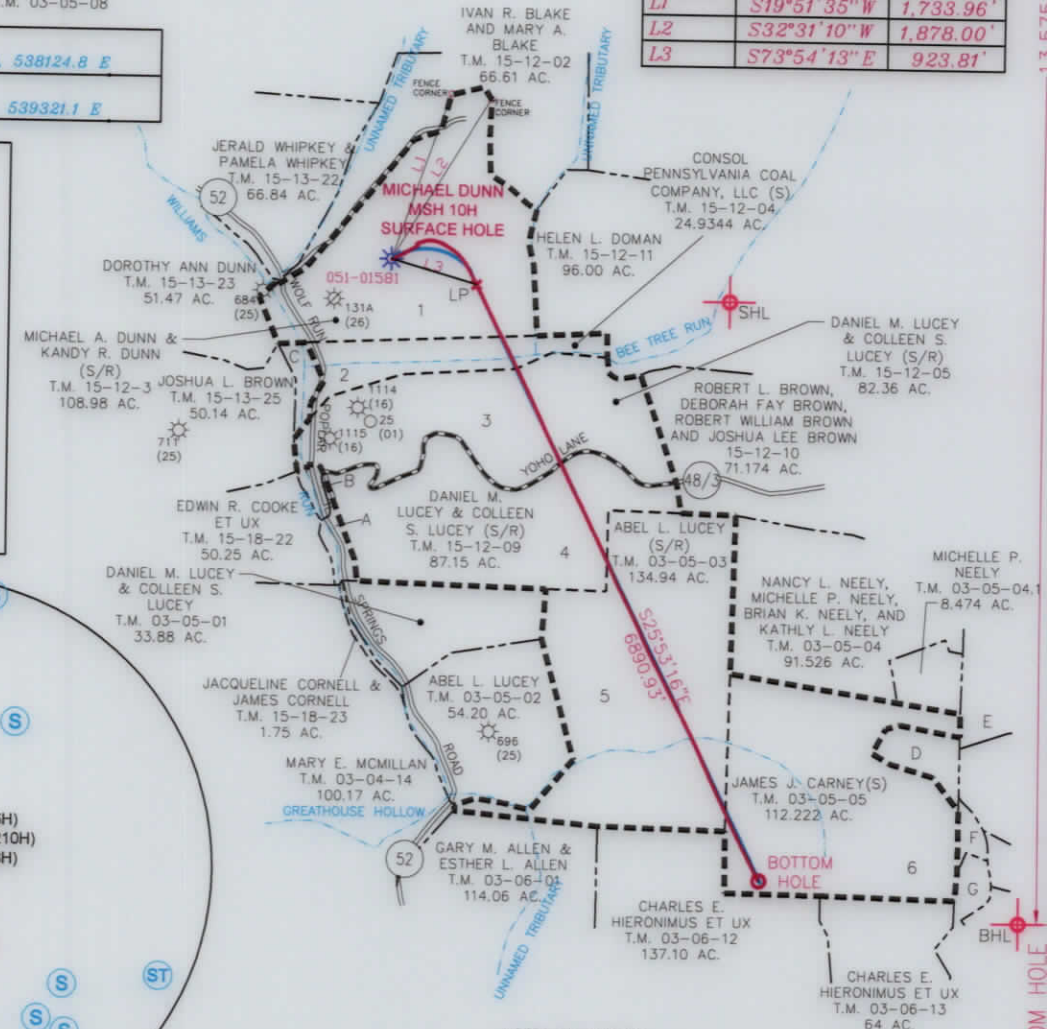
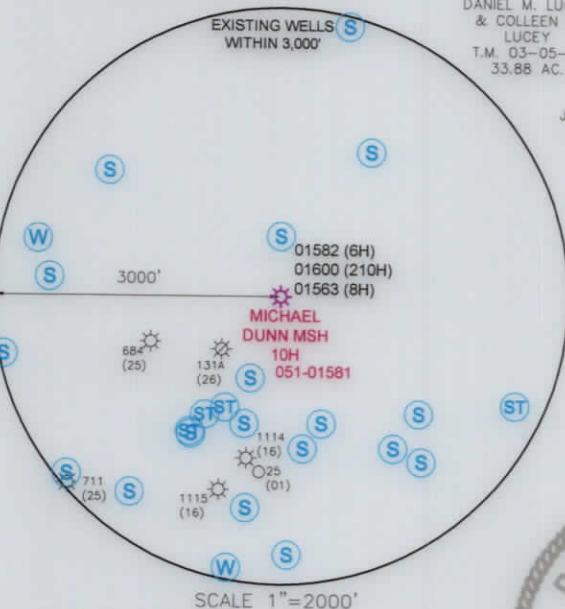
SURFACE HOLE ← 3,469' →  
Latitude: 39°55'00" BOTTOM HOLE 395' →

- A-GARY L MITCHELL & MONA S. MITCHELL 4.258 AC. T.M. 15-12-08
- B-ROBERT WILLIAM BROWN 3.695 AC. 15-12-07
- C-CONSOL PENNSYLVANIA COAL COMPANY, LLC 4.643 AC. T.M. 15-12-06
- D-STEVEN L. ROBINSON ET UX 9.4 AC. T.M. 03-05-05.1
- E-LINDA L. MCCrackEN 66.33 AC. T.M. 03-05-09
- F-MILTON E. & LINDA MCCrackEN 3.906 AC. T.M. 03-05-07
- G-MILTON E. & LINDA MCCrackEN 6.00 AC. T.M. 03-05-08

**SURFACE HOLE LOCATION**  
UTM NAD 83 (METERS)-4416440.7 N, 538124.8 E  
**BOTTOM HOLE LOCATION**  
UTM NAD 83 (METERS)-4414464.1 N, 539321.1 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)



| NUMBER | DIRECTION   | DISTANCE  |
|--------|-------------|-----------|
| L1     | S19°51'35"W | 1,733.96' |
| L2     | S32°31'10"W | 1,878.00' |
| L3     | S73°54'13"E | 923.81'   |

- 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.



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*



(+) 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 SOURCE OF ELEVATION: SURVEY GRADE GPS (NAVD 88, US FT)

COMPANY: **SWN** Production Company, LLC

**MICHAEL DUNN MSH**  
OPERATOR'S WELL #: 10H  
API WELL #: 47 051 01581  
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 **11/12/2021**

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

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

JACKSON SURVEYING

INC.  
P.O. Box 1480  
677 W. Main St.  
Clarkspurg, WV 26303  
304-633-8851

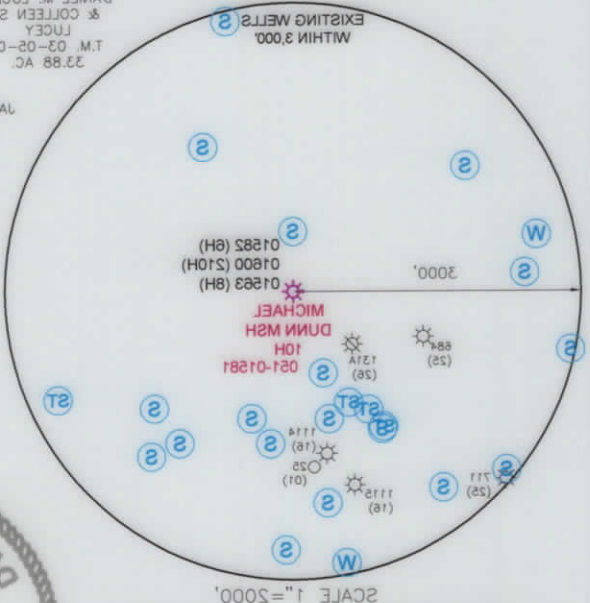
A-GARY L MITCHELL & MONA S MITCHELL 4.258 AC. T.M. 12-12-08  
B-ROBERT WILLIAM BROWN 3.895 AC. 12-12-07  
C-CONSOL PENNSYLVANIA COAL COMPANY, LLC 4.843 AC. T.M. 12-12-08  
D-STEVEN L ROBINSON ET UX 9.4 AC. T.M. 03-02-01  
E-LINDA L MCGRACKEN 88.23 AC. T.M. 03-02-09  
F-MILTON E & LINDA MCGRACKEN 3.908 AC. T.M. 03-02-07  
G-MILTON E & LINDA MCGRACKEN 6.00 AC. T.M. 03-02-08

**BOTTOM HOLE LOCATION**  
TUM NAD 83 (METERS) -444447.1 N. 233311 E

**SURFACE HOLE LOCATION**  
TUM NAD 83 (METERS) -444447.7 N. 238124.8 E

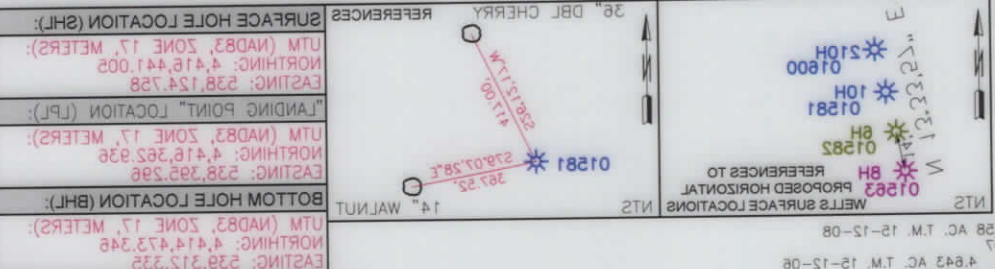
**LEGEND**

- ADRILED LEG (RED TEXT)
- PERMIT LEG (BLUE LEG)
- WATERWELL
- SPRING
- STREAM
- SURFACE & ROYALTY OWNER
- DIVISION LINES BETWEEN LEASE TRACTS
- ADJOINERS LINES (S)
- SURFACE OWNER
- EXISTING WELLS WITHIN 3,000'

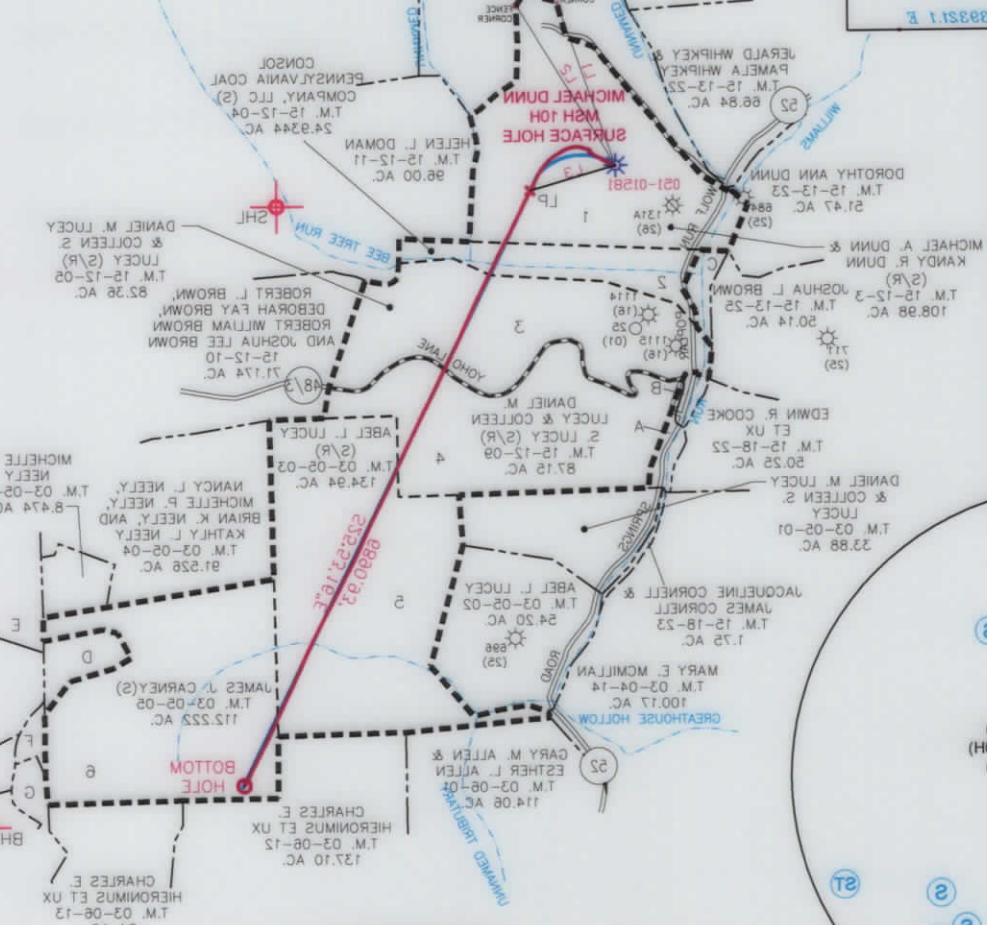


I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

P. 2. 708 David Jackson



| NUMBER | DIRECTION    | DISTANCE  |
|--------|--------------|-----------|
| L1     | S21°21'32" W | 1.733 96' |
| L2     | S23°31'10" W | 1.878 00' |
| L3     | S23°24'13" E | 9.33 81'  |



NOTES ON SURVEY:  
1. NO DWELLINGS OR AGRICULTURAL BUILDINGS GREATER THAN 2,500 SQUARE FEET WITHIN 625 FEET OF PROPOSED CENTER OF PAD.  
2. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL.  
3. ALL WELLS WITHIN 500' OF THE HORIZONTAL LEG ARE SHOWN ON THIS PLAN BASED UPON INFORMATION TAKEN FROM DEP MAPS, WELL PLATS AND AERIAL PHOTOS.  
4. 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**

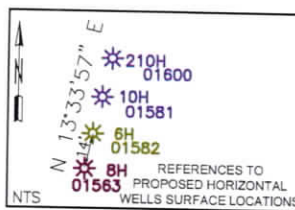
|   |  |                                    |                        |                  |
|---|--|------------------------------------|------------------------|------------------|
| WV DEP OFFICE OF OIL & GAS<br>801 27TH STREET<br>CHARLESTON, WV 25034 | UNITED STATES TOPOGRAPHIC MAPS (+) DENOTES LOCATION OF WELL ON | MINIMUM DEGREE OF ACCURACY: 1/2000 | OPERATOR'S WELL #: 10H | MICHAEL DUNN MSH |
| ELEVATION: (NAD 88, US FT)  | SOURCE OF GRADE GPS  | PROVEN SURVEY                      | API WELL #: 47         | 051 01581        |
| COUNTY  | STATE  | PERMIT                             |                        |                  |

|  |   |                                       |                        |                  |                 |
|--|---|---------------------------------------|------------------------|------------------|-----------------|
| WELL TYPE: OIL <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> PRODUCTION <input type="checkbox"/> DEEP <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> STORAGE <input checked="" type="checkbox"/> SHALLOW <input type="checkbox"/> | WATERSHED: WILLIAMS RUN OF UPPER OHIO SOUTH   | DISTRICT: WEBSTER                     | COUNTY: MARSHALL       | ACREAGE: 108.98  | ACREAGE: 108.98 |
| 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"/> CLEAN OUT & REPLUG <input type="checkbox"/> OTHER CHANGE (SPECIFY) ADRILED | ESTIMATED DEPTH: 6833' TVD 12987' TMD | TARGET ZONE: MARCELLUS | DATE: 07-12-2016 | REVISIONS:      |

|  |  |
|--|--|
| 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:                                    | LEGEND:                                  |
| PROPOSED SURFACE HOLE \ BOTTOM HOLE        | PROPOSED SURFACE HOLE \ BOTTOM HOLE      |
| EXISTING \ PRODUCING WELLS                 | EXISTING \ PRODUCING WELLS               |
| ABANDONED WELL                             | ABANDONED WELL                           |
| PLUGGED & ABANDONED WELL                   | PLUGGED & ABANDONED WELL                 |
| CUT CONDUCTOR                              | CUT CONDUCTOR                            |
| LEASE BOUNDARY                             | LEASE BOUNDARY                           |
| PERMIT DHP                                 | PERMIT DHP                               |
| MARCELLUS DHP                              | MARCELLUS DHP                            |
| ABANDONED PATH                             | ABANDONED PATH                           |

JACKSON SURVEYING INC.

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



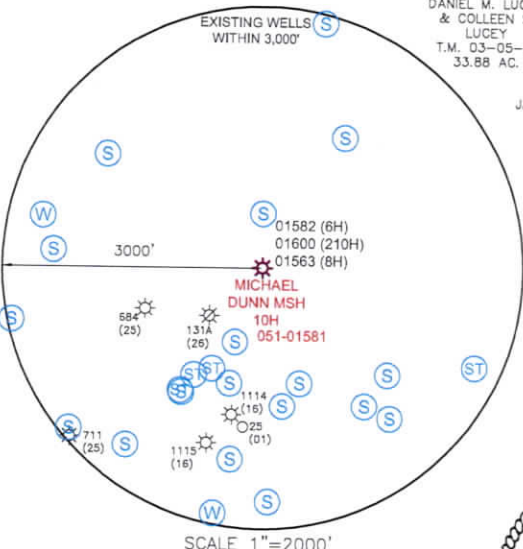
SURFACE HOLE 3,469'  
Latitude: 39°55'00"  
BOTTOM HOLE 395'

| SURFACE HOLE LOCATION (SHL):    |                      |
|---------------------------------|----------------------|
| UTM (NAD83, ZONE 17, METERS):   |                      |
| NORTHING: 4,416,441.005         | EASTING: 538,124.758 |
| "LANDING POINT" LOCATION (LPL): |                      |
| UTM (NAD83, ZONE 17, METERS):   |                      |
| NORTHING: 4,416,362.936         | EASTING: 538,395.296 |
| BOTTOM HOLE LOCATION (BHL):     |                      |
| UTM (NAD83, ZONE 17, METERS):   |                      |
| NORTHING: 4,414,473.346         | EASTING: 539,312.335 |

| NUMBER | DIRECTION   | DISTANCE  |
|--------|-------------|-----------|
| L1     | S19°51'35"W | 1,733.96' |
| L2     | S32°31'10"W | 1,878.00' |
| L3     | S73°54'13"E | 923.81'   |

- A-GARY L. MITCHELL & MONA S. MITCHELL 4.258 AC. T.M. 15-12-08
- B-ROBERT WILLIAM BROWN 3.695 AC. 15-12-07
- C-CONSOL PENNSYLVANIA COAL COMPANY, LLC 4.643 AC. T.M. 15-12-06
- D-STEVEN L. ROBINSON ET UX 9.4 AC. T.M. 03-05-05.1
- E-LINDA L. MCCrackEN 56.33 AC. T.M. 03-05-09
- F-MILTON E. & LINDA MCCrackEN 3.906 AC. T.M. 03-05-07
- G-MILTON E. & LINDA MCCrackEN 6.00 AC. T.M. 03-05-08

**SURFACE HOLE LOCATION**  
UTM NAD 83 (METERS)-4416440.7 N, 538124.8 E  
**BOTTOM HOLE LOCATION**  
UTM NAD 83 (METERS)-4414464.1 N, 539321.1 E



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
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  - 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 #: 10H  
API WELL #: 47 051 01581  
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

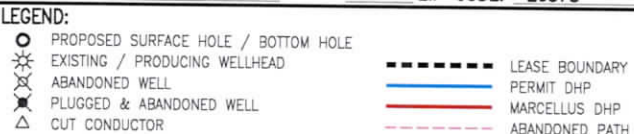
OIL & GAS ROYALTY OWNER: MICHAEL A. DUNN AND KANDY R. DUNN ACREAGE: 108.98

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

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

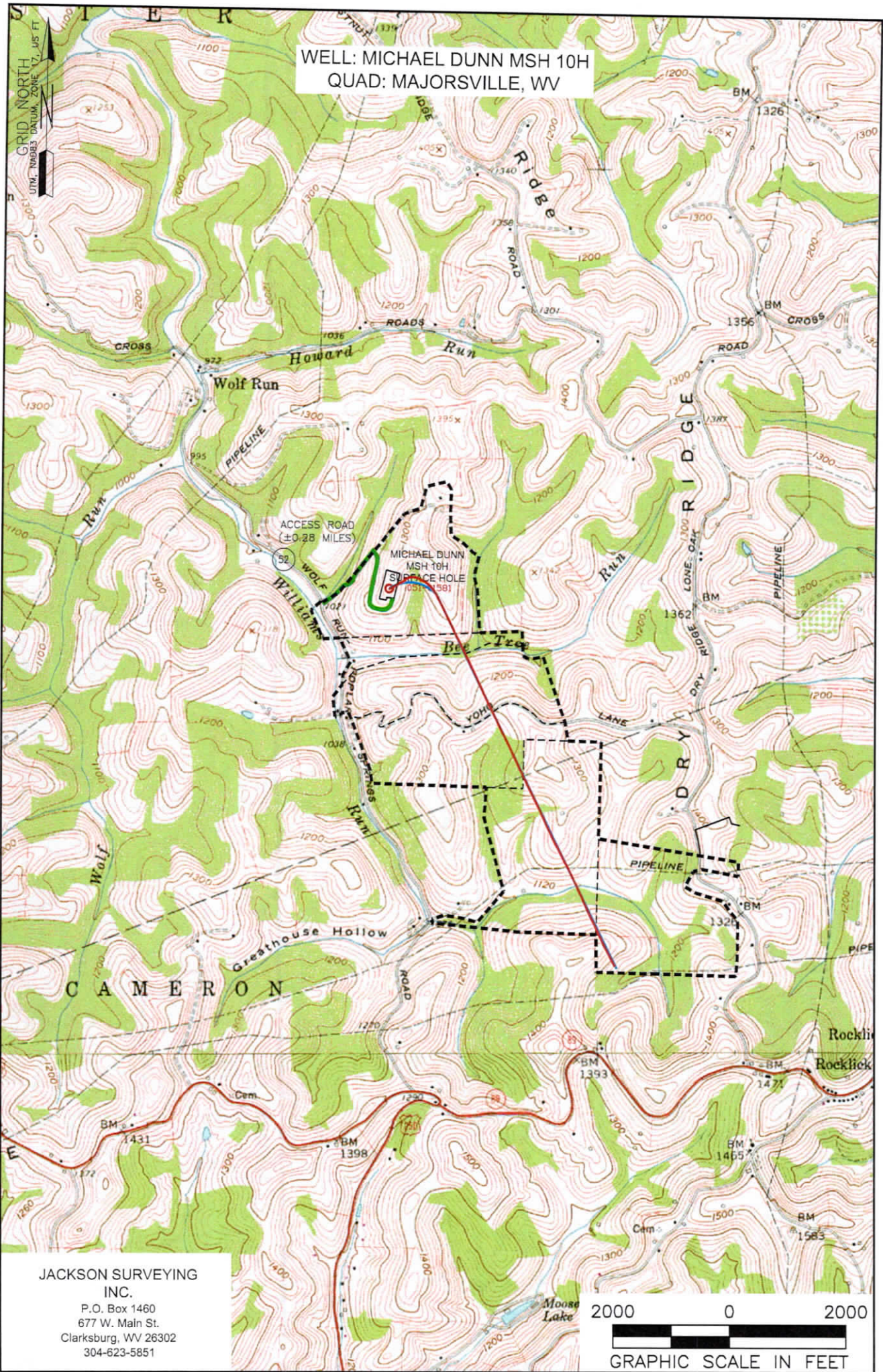
TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: 6,833' TVD 12,987' TMD

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



|            |                      |
|------------|----------------------|
| REVISIONS: | DATE: 07-12-2016     |
|            | DRAWN BY: 11/19/2021 |
|            | SCALE: 1" = 2000'    |
|            | DRAWING NO:          |
|            | WELL LOCATION PLAT   |

WELL: MICHAEL DUNN MSH 10H  
 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<br>SWN PRODUCTION COMPANY, LLC | Well (Farm) Name<br>MICHAEL DUNN MSH 10H      | Well#<br>10H (051-01581) |
| Address<br>PO BOX 1300 JANE LEW, WV 26378                   | County<br>MARSHALL                            | District<br>WEBSTER      |
| Surface Landowner/ Lessor<br>MICHAEL A. DUNN ET UX          | USGS 7 1/2 Quadrangle Map Name<br>MAJORSVILLE |                          |

11/12/2021

WR-36  
Rev. 5/08

Date: APRIL 10, 2017  
Operators Well Number: MICHAEL DUNN MSH 10H  
API Well No: 47-051 - 01581

**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 7,092.06 MD/ 6,802.37 TVD feet  
Perforation Interval 7,141'/14,078' 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 | 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<br>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<br>13               |
| 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<br>4.1 BBLs | Daily Water<br>771.8 BBLs | Daily Gas<br>3,866 MCF | Gas-Oil Ratio |
|-----------------------|---------------------------|------------------------|---------------|

*Denise Grantham*  
Well Operator

BY DENISE GRANTHAM

ITS: DESIGNATED REPRESENTATIVE

11/12/2021