

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

RECEIVED

MAY 26 2015

WV GEOLOGICAL SURVEY  
MORGANTOWN, WV

API 47 - 017 - 06657 County Doddridge District Central  
Quad Oxford 7.5' Pad Name Fritz Pad Field/Pool Name ----  
Farm name Horton, Judy A. Well Number Sheep Run Unit 1H  
Operator (as registered with the OOG) Antero Resources Corporation  
Address 1615 Wynkoop St. City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4342771m Easting 513808m  
Landing Point of Curve Northing 4342820.24m Easting 514178.18m  
Bottom Hole Northing 4340604m Easting 515227m

Elevation (ft) 1053' 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)  
Air- Foam & 4% KCL  
Mud- Polymer

Date permit issued 1/26/2015 Date drilling commenced 3/9/2015 Date drilling ceased 5/27/2015  
Date completion activities began 11/7/2015 Date completion activities ceased 2/27/2016  
Verbal plugging (Y/N) N/A 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 97' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1143', 1529' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 1429' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by:

API 47- 017 - 06657 Farm name Horton, Judy A. Well number Sheep Run Unit 1H

| 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                 | 30"             | 20"         | 40'    | New         | 94# J-55    | N/A             | Y  |
| Surface                   | 17- 1/2"        | 13- 3/8"    | 362'   | New         | 48# H-40    | N/A             | Y  |
| Coal                      |                 |             |        |             |             |                 |  |
| Intermediate 1            | 12-1/4"         | 9-5/8"      | 2529'  | New         | 36# J-55    | N/A             | Y  |
| Intermediate 2            |                 |             |        |             |             |                 |  |
| Intermediate 3            |                 |             |        |             |             |                 |  |
| Production                | 8-3/4" & 8-1/2" | 5-1/2"      | 15054' | New         | 23# P-110   | N/A             | Y  |
| Tubing                    |                 | 2-3/8"      | 6776'  |             | 4.7# N-80   | N/A             |  |
| Packer type and depth set |                 | N/A         |        |             |             |                 |  |

Comment Details \_\_\_\_\_

| CEMENT DATA    | Class/Type of Cement | Number of Sacks               | Slurry wt (ppg)     | Yield (ft <sup>3</sup> /sks) | Volume (ft <sup>2</sup> ) | Cement Top (MD)                | WOC (hrs) |
|----------------|----------------------|-------------------------------|---------------------|------------------------------|---------------------------|--------------------------------|-----------|
| Conductor      | Class A              | 150 sx                        | 15.6                | 1.18                         | 38                        | 0'                             | 8 Hrs.    |
| Surface        | Class A              | 410 sx                        | 15.6                | 1.19                         | 251                       | 0'                             | 8 Hrs.    |
| Coal           |                      |                               |                     |                              |                           |                                |           |
| Intermediate 1 | Class A              | 930 sx                        | 15.4                | 1.18                         | 792                       | 0'                             | 8 Hrs.    |
| Intermediate 2 |                      |                               |                     |                              |                           |                                |           |
| Intermediate 3 |                      |                               |                     |                              |                           |                                |           |
| Production     | Class H              | 1046 sx (Lead) 1271 sx (Tail) | 14.5 Lead 15.2 Tail | 1.30 Lead 1.85 Tail          | 2984                      | -500' into Intermediate Casing | 8 Hrs.    |
| Tubing         |                      |                               |                     |                              |                           |                                |           |

Drillers TD (ft) 15058' MD, 6498' TVD (BHL), 6568' (Deepest Point Drilled) Loggers TD (ft) 15058'  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6410'

\*\* This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Washington Unit 2H API #47-017-06371). Please reference the wireline logs submitted with Form WR-35 for Washington Unit 2H. A Cement Bond Log has been included with this submittal.

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 \_\_\_\_\_

Conductor- 0  
 Surface- 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface  
 Intermediate- 1 above float joint, 1 above float collar, 1 every 4th joint to surface  
 Production- 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

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 \_\_\_\_\_



API 47- 017 - 06657 Farm name Horton, Judy A. Well number Sheep Run Unit 1H

| <u>PRODUCING FORMATION(S)</u> | <u>DEPTHS</u>          |                       |
|-------------------------------|------------------------|-----------------------|
| <u>Marcellus</u>              | <u>6526' (TOP)</u> TVD | <u>6826' (TOP)</u> MD |
| _____                         | _____                  | _____                 |
| _____                         | _____                  | _____                 |

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 382 mcfpd Oil 0 bpd NGL --- bpd Water 14 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

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

**\*PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling LLC  
Address 562 Spring Run Rd. City Pennsboro State WV Zip 26415

Logging Company Rush Wellsite Services  
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

Cementing Company Nabors Completion & Production Services, Co.  
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company US Well Services  
Address 533 Industrial Park Dr. City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Kara Quackenbush Telephone 303-357-7233  
Signature [Signature] Title Permit Representative Date 5/24/2016

API 47-017-06657 Farm Name Horton, Judy A. Well Number Sheep Run Unit 1H

**EXHIBIT 1**

| Stage No. | Perforation Date | Perforated from MD ft. | Perforated to MD ft. | Number of Perforations | Formations |
|-----------|------------------|------------------------|----------------------|------------------------|------------|
| 1         | 7-Nov-15         | 14,832                 | 14,959               | 60                     | Marcellus  |
| 2         | 14-Dec-15        | 14,681                 | 14,809               | 60                     | Marcellus  |
| 3         | 15-Dec-15        | 14,531                 | 14,658               | 60                     | Marcellus  |
| 4         | 15-Dec-15        | 14,381                 | 14,508               | 60                     | Marcellus  |
| 5         | 15-Dec-15        | 14,231                 | 14,358               | 60                     | Marcellus  |
| 6         | 15-Dec-15        | 14,081                 | 14,208               | 60                     | Marcellus  |
| 7         | 15-Dec-15        | 13,930                 | 14,058               | 60                     | Marcellus  |
| 8         | 16-Dec-15        | 13,780                 | 13,907               | 60                     | Marcellus  |
| 9         | 16-Dec-15        | 13,630                 | 13,757               | 60                     | Marcellus  |
| 10        | 16-Dec-15        | 13,480                 | 13,607               | 60                     | Marcellus  |
| 11        | 17-Dec-15        | 13,330                 | 13,457               | 60                     | Marcellus  |
| 12        | 17-Dec-15        | 13,180                 | 13,307               | 60                     | Marcellus  |
| 13        | 17-Dec-15        | 13,029                 | 13,156               | 60                     | Marcellus  |
| 14        | 17-Dec-15        | 12,879                 | 13,006               | 60                     | Marcellus  |
| 15        | 18-Dec-15        | 12,729                 | 12,856               | 60                     | Marcellus  |
| 16        | 19-Dec-15        | 12,579                 | 12,706               | 60                     | Marcellus  |
| 17        | 19-Dec-15        | 12,429                 | 12,556               | 60                     | Marcellus  |
| 18        | 19-Dec-15        | 12,278                 | 12,406               | 60                     | Marcellus  |
| 19        | 20-Dec-15        | 12,128                 | 12,255               | 60                     | Marcellus  |
| 20        | 21-Dec-15        | 11,978                 | 12,105               | 60                     | Marcellus  |
| 21        | 21-Dec-15        | 11,828                 | 11,955               | 60                     | Marcellus  |
| 22        | 21-Dec-15        | 11,678                 | 11,805               | 60                     | Marcellus  |
| 23        | 21-Dec-15        | 11,527                 | 11,655               | 60                     | Marcellus  |
| 24        | 22-Dec-15        | 11,377                 | 11,504               | 60                     | Marcellus  |
| 25        | 22-Dec-15        | 11,227                 | 11,354               | 60                     | Marcellus  |
| 26        | 22-Dec-15        | 11,077                 | 11,204               | 60                     | Marcellus  |
| 27        | 22-Dec-15        | 10,927                 | 11,054               | 60                     | Marcellus  |
| 28        | 22-Dec-15        | 10,776                 | 10,904               | 60                     | Marcellus  |
| 29        | 23-Dec-15        | 10,626                 | 10,753               | 60                     | Marcellus  |
| 30        | 23-Dec-15        | 10,476                 | 10,603               | 60                     | Marcellus  |
| 31        | 23-Dec-15        | 10,326                 | 10,453               | 60                     | Marcellus  |
| 32        | 23-Dec-15        | 10,176                 | 10,303               | 60                     | Marcellus  |
| 33        | 23-Dec-15        | 10,025                 | 10,153               | 60                     | Marcellus  |
| 34        | 26-Dec-15        | 9,875                  | 10,002               | 60                     | Marcellus  |
| 35        | 26-Dec-15        | 9,725                  | 9,852                | 60                     | Marcellus  |
| 36        | 26-Dec-15        | 9,575                  | 9,702                | 60                     | Marcellus  |
| 37        | 27-Dec-15        | 9,425                  | 9,552                | 60                     | Marcellus  |
| 38        | 27-Dec-15        | 9,275                  | 9,402                | 60                     | Marcellus  |
| 39        | 27-Dec-15        | 9,124                  | 9,252                | 60                     | Marcellus  |
| 40        | 27-Dec-15        | 8,974                  | 9,101                | 60                     | Marcellus  |
| 41        | 27-Dec-15        | 8,824                  | 8,951                | 60                     | Marcellus  |
| 42        | 28-Dec-15        | 8,674                  | 8,801                | 60                     | Marcellus  |
| 43        | 28-Dec-15        | 8,524                  | 8,651                | 60                     | Marcellus  |
| 44        | 28-Dec-15        | 8,373                  | 8,501                | 60                     | Marcellus  |
| 45        | 28-Dec-15        | 8,223                  | 8,350                | 60                     | Marcellus  |
| 46        | 28-Dec-15        | 8,073                  | 8,200                | 60                     | Marcellus  |
| 47        | 29-Dec-15        | 7,923                  | 8,050                | 60                     | Marcellus  |
| 48        | 29-Dec-15        | 7,773                  | 7,900                | 60                     | Marcellus  |
| 49        | 29-Dec-15        | 7,622                  | 7,750                | 60                     | Marcellus  |
| 50        | 29-Dec-15        | 7,472                  | 7,599                | 60                     | Marcellus  |
| 51        | 29-Dec-15        | 7,322                  | 7,449                | 60                     | Marcellus  |
| 52        | 29-Dec-15        | 7,172                  | 7,299                | 60                     | Marcellus  |
| 53        | 30-Dec-15        | 7,022                  | 7,149                | 60                     | Marcellus  |
| 54        | 30-Dec-15        | 6,871                  | 6,999                | 60                     | Marcellus  |

API 47-017-06657 Farm Name Horton, Judy A. Well Number Sheep Run Unit 1H

**EXHIBIT 2**

| Stage No. | Stimulations Date | Avg Pump Rate | Avg Treatment Pressure (PSI) | Max Breakdown Pressure (PSI) | ISIP (PSI)   | Amount of Proppant (lbs) | Amount of Water (bbls) | Amount of Nitrogen/ other (units) |
|-----------|-------------------|---------------|------------------------------|------------------------------|--------------|--------------------------|------------------------|-----------------------------------|
| 1         | 14-Dec-15         | 60.0          | 6,744                        | 5,362                        | 3,809        | 122,110                  | 6,588                  | N/A                               |
| 2         | 14-Dec-15         | 62.0          | 7,005                        | 6,244                        | 4,355        | 177,300                  | 6,407                  | N/A                               |
| 3         | 15-Dec-15         | 62.0          | 7,005                        | 5,543                        | 4,060        | 219,640                  | 5,990                  | N/A                               |
| 4         | 15-Dec-15         | 63.0          | 7,153                        | 5,480                        | 3,667        | 189,440                  | 6,235                  | N/A                               |
| 5         | 15-Dec-15         | 69.0          | 7,422                        | 6,717                        | 3,992        | 211,530                  | 6,212                  | N/A                               |
| 6         | 15-Dec-15         | 72.0          | 7,193                        | 5,907                        | 4,843        | 227,375                  | 6,234                  | N/A                               |
| 7         | 15-Dec-15         | 73.0          | 7,311                        | 5,664                        | 4,327        | 232,450                  | 6,199                  | N/A                               |
| 8         | 16-Dec-15         | 71.0          | 7,287                        | 6,634                        | 3,876        | 217,800                  | 6,074                  | N/A                               |
| 9         | 16-Dec-15         | 72.0          | 7,130                        | 5,827                        | 3,579        | 233,490                  | 6,191                  | N/A                               |
| 10        | 16-Dec-15         | 73.0          | 7,316                        | 5,687                        | 4,299        | 230,250                  | 6,211                  | N/A                               |
| 11        | 17-Dec-15         | 74.0          | 7,267                        | 6,161                        | 5,169        | 234,949                  | 6,182                  | N/A                               |
| 12        | 17-Dec-15         | 71.0          | 6,996                        | 5,588                        | 4,443        | 218,060                  | 5,954                  | N/A                               |
| 13        | 17-Dec-15         | 71.0          | 7,021                        | 5,661                        | 4,755        | 232,640                  | 6,107                  | N/A                               |
| 14        | 17-Dec-15         | 75.0          | 7,016                        | 5,488                        | 4,760        | 232,600                  | 6,145                  | N/A                               |
| 15        | 18-Dec-15         | 71.0          | 6,942                        | 6,032                        | 4,229        | 225,520                  | 6,061                  | N/A                               |
| 16        | 19-Dec-15         | 72.0          | 6,805                        | 5,718                        | 4,481        | 233,640                  | 6,082                  | N/A                               |
| 17        | 19-Dec-15         | 76.0          | 7,164                        | 5,340                        | 4,308        | 220,500                  | 6,586                  | N/A                               |
| 18        | 19-Dec-15         | 71.0          | 6,682                        | 6,290                        | 4,766        | 220,300                  | 5,938                  | N/A                               |
| 19        | 20-Dec-15         | 74.0          | 7,214                        | 5,801                        | 4,165        | 204,025                  | 5,872                  | N/A                               |
| 20        | 21-Dec-15         | 77.0          | 7,030                        | 5,969                        | 4,335        | 205,720                  | 5,700                  | N/A                               |
| 21        | 21-Dec-15         | 71.0          | 6,514                        | 5,665                        | 4,090        | 233,290                  | 6,030                  | N/A                               |
| 22        | 21-Dec-15         | 73.0          | 6,746                        | 6,477                        | 4,297        | 234,010                  | 6,028                  | N/A                               |
| 23        | 21-Dec-15         | 72.0          | 6,679                        | 5,392                        | 4,660        | 233,189                  | 5,995                  | N/A                               |
| 24        | 22-Dec-15         | 73.0          | 6,825                        | 5,517                        | 5,265        | 196,309                  | 6,559                  | N/A                               |
| 25        | 22-Dec-15         | 72.0          | 6,585                        | 6,282                        | 4,624        | 233,820                  | 5,988                  | N/A                               |
| 26        | 22-Dec-15         | 72.0          | 6,553                        | 5,663                        | 3,608        | 232,550                  | 5,978                  | N/A                               |
| 27        | 22-Dec-15         | 73.0          | 6,745                        | 5,949                        | 5,283        | 231,613                  | 5,935                  | N/A                               |
| 28        | 22-Dec-15         | 73.0          | 6,840                        | 5,794                        | 4,936        | 232,826                  | 5,942                  | N/A                               |
| 29        | 23-Dec-15         | 73.0          | 6,566                        | 5,471                        | 4,569        | 232,770                  | 5,921                  | N/A                               |
| 30        | 23-Dec-15         | 72.0          | 6,589                        | 5,422                        | 4,175        | 231,550                  | 5,888                  | N/A                               |
| 31        | 23-Dec-15         | 72.0          | 6,701                        | 5,544                        | 4,084        | 232,450                  | 5,965                  | N/A                               |
| 32        | 23-Dec-15         | 73.0          | 6,560                        | 5,752                        | 5,364        | 232,673                  | 5,881                  | N/A                               |
| 33        | 23-Dec-15         | 73.0          | 6,317                        | 5,645                        | 5,094        | 232,058                  | 5,865                  | N/A                               |
| 34        | 26-Dec-15         | 71.0          | 6,541                        | 5,588                        | 4,830        | 196,300                  | 6,193                  | N/A                               |
| 35        | 26-Dec-15         | 72.0          | 6,879                        | 6,149                        | 4,772        | 210,690                  | 6,411                  | N/A                               |
| 36        | 26-Dec-15         | 70.0          | 6,996                        | 5,968                        | 4,162        | 198,240                  | 5,651                  | N/A                               |
| 37        | 27-Dec-15         | 73.0          | 6,879                        | 5,855                        | 4,073        | 233,350                  | 5,813                  | N/A                               |
| 38        | 27-Dec-15         | 73.0          | 6,639                        | 5,642                        | 4,212        | 232,450                  | 5,772                  | N/A                               |
| 39        | 27-Dec-15         | 72.0          | 6,620                        | 6,414                        | 3,986        | 200,750                  | 6,219                  | N/A                               |
| 40        | 27-Dec-15         | 70.0          | 6,844                        | 6,088                        | 3,786        | 232,990                  | 5,799                  | N/A                               |
| 41        | 27-Dec-15         | 73.0          | 6,791                        | 6,129                        | 3,890        | 233,250                  | 5,819                  | N/A                               |
| 42        | 28-Dec-15         | 71.0          | 6,639                        | 6,436                        | 3,924        | 145,950                  | 5,947                  | N/A                               |
| 43        | 28-Dec-15         | 78.0          | 6,713                        | 5,573                        | 4,210        | 233,310                  | 5,725                  | N/A                               |
| 44        | 28-Dec-15         | 73.0          | 6,658                        | 5,795                        | 4,734        | 232,070                  | 5,724                  | N/A                               |
| 45        | 28-Dec-15         | 71.0          | 6,511                        | 5,486                        | 5,012        | 218,650                  | 5,594                  | N/A                               |
| 46        | 28-Dec-15         | 70.0          | 6,304                        | 5,985                        | 4,647        | 232,950                  | 6,243                  | N/A                               |
| 47        | 29-Dec-15         | 73.0          | 6,309                        | 5,624                        | 4,669        | 234,100                  | 5,686                  | N/A                               |
| 48        | 29-Dec-15         | 73.0          | 6,184                        | 5,857                        | 5,076        | 237,800                  | 5,732                  | N/A                               |
| 49        | 29-Dec-15         | 73.0          | 6,230                        | 5,888                        | 4,941        | 235,000                  | 5,659                  | N/A                               |
| 50        | 29-Dec-15         | 73.0          | 6,258                        | 6,186                        | 5,031        | 239,900                  | 5,736                  | N/A                               |
| 51        | 29-Dec-15         | 73.0          | 6,118                        | 5,894                        | 4,111        | 234,950                  | 5,661                  | N/A                               |
| 52        | 29-Dec-15         | 72.0          | 6,184                        | 6,291                        | 4,038        | 234,050                  | 5,627                  | N/A                               |
| 53        | 30-Dec-15         | 72.0          | 6,095                        | 5,744                        | 4,754        | 234,250                  | 5,615                  | N/A                               |
| 54        | 30-Dec-15         | 73.0          | 6,207                        | 5,927                        | 3,986        | 232,900                  | 5,627                  | N/A                               |
| AVG=      |                   | <b>71.7</b>   | <b>6,750</b>                 | <b>5,856</b>                 | <b>4,428</b> | <b>11,962,347</b>        | <b>5,985</b>           | <b>TOTAL</b>                      |

API 47-017-06657 Farm Name Horton, Judy A. Well Number Sheep Run Unit 1H

**EXHIBIT 3**

| LITHOLOGY/ FORMATION  | TOP DEPTH (TVD) | BOTTOM DEPTH (TVD) | TOP DEPTH (MD) | BOTTOM DEPTH (MD) |
|-----------------------|-----------------|--------------------|----------------|-------------------|
|                       | From Surface    | From Surface       | From Surface   | From Surface      |
| Fresh Water           | 97'             | N/A                | 97'            | N/A               |
| Siltstone/Sandstone   | 0               | 109                | 0              | 109               |
| Shale/ Siltstone      | est. 109        | 169                | est. 109       | 169               |
| Siltstone/ Trace Coal | est. 169        | 329                | est. 169       | 329               |
| Siltstone/ Shale      | est. 329        | 429                | est. 329       | 429               |
| Shale                 | est. 429        | 509                | est. 429       | 509               |
| Sandstone             | est. 509        | 549                | est. 509       | 549               |
| Shale/ Siltstone      | est. 549        | 629                | est. 549       | 629               |
| Limestone/ Shale      | est. 629        | 689                | est. 629       | 689               |
| Shale/ Siltstone      | est. 689        | 829                | est. 689       | 829               |
| Shale/ Limestone      | est. 829        | 909                | est. 829       | 909               |
| Sandstone             | est. 909        | 969                | est. 909       | 969               |
| Shale                 | est. 969        | 1089               | est. 969       | 1089              |
| Siltstone/ Trace Coal | est. 1089       | 1429               | est. 1089      | 1429              |
| Coal                  | est. 1429       | 1549               | est. 1429      | 1549              |
| Siltstone/ Trace Coal | est. 1549       | 1689               | est. 1549      | 1689              |
| Shale/ Siltstone      | est. 1689       | 1909               | est. 1689      | 1909              |
| Sandstone             | est. 1909       | 1957               | est. 1909      | 1960              |
| Big Lime              | 1957            | 2612               | 1960           | 2616              |
| Fifty Foot Sandstone  | 2612            | 2672               | 2616           | 2675              |
| Gordon                | 2672            | 2837               | 2675           | 2842              |
| Fifth Sandstone       | 2837            | 2989               | 2842           | 2997              |
| Bayard                | 2989            | 3868               | 2997           | 3905              |
| Speechley             | 3868            | 4103               | 3905           | 4152              |
| Baltown               | 4103            | 4533               | 4152           | 4609              |
| Bradford              | 4533            | 4952               | 4609           | 5052              |
| Benson                | 4952            | 5196               | 5052           | 5308              |
| Alexander             | 5196            | 6171               | 5308           | 6330              |
| Sycamore              | 6171            | 6345               | 6330           | 6520              |
| Middlesex             | 6345            | 6467               | 6520           | 6680              |
| Burkett               | 6467            | 6494               | 6680           | 6732              |
| Tully                 | 6494            | 6526               | 6732           | 6826              |
| Marcellus             | 6526            | NA                 | 6826           | NA                |

\*Please note Antero determines formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

# Hydraulic Fracturing Fluid Product Component Information Disclosure

|                                |                              |
|--------------------------------|------------------------------|
| Job Start Date:                | 11/7/2015                    |
| Job End Date:                  | 12/13/2015                   |
| State:                         | West Virginia                |
| County:                        | Doddridge                    |
| API Number:                    | 47-017-06657-00-00           |
| Operator Name:                 | Antero Resources Corporation |
| Well Name and Number:          | Sheep Run 1H                 |
| Longitude:                     | -80.84001100                 |
| Latitude:                      | 39.23413100                  |
| Datum:                         | NAD83                        |
| Federal/Tribal Well:           | NO                           |
| True Vertical Depth:           | 6,567                        |
| Total Base Water Volume (gal): | 14,237,910                   |
| 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                  | Antero Resources        | Base Fluid       | Water  | 7732-18-5                                | 100.00000  | 89.84485   |          |
| Sand                   | U.S. Well Services, LLC | Proppant         |  |  |  |  |          |
| GC-15                  | U.S. Well Services      | Gelling Agents   | Crystalline Silica, quartz                   | 14808-60-7                               | 100.00000  | 9.80126  |          |
|                        |                         |                  | Guar Gum                                     | 9000-30-0                                | 50.00000   | 0.06900  |          |
|                        |                         |                  | Petroleum Distillates                        | 64742-47-8                               | 60.00000   | 0.06535  |          |
|                        |                         |                  | Suspending agent (solid)                     | 14808-60-7                               | 3.00000  | 0.01055  |          |
|                        |                         |                  | Surfactant                                   | 68439-51-0                               | 3.00000  | 0.00414  |          |
| HCL Acid (12.6%-18.0%) | U.S. Well Services, LLC | Bulk Acid        |  |  |  |  |          |
|                        |                         |                  | Water  | 7732-18-5                                | 87.50000   | 0.08412  |          |
|                        |                         |                  | Hydrogen Chloride                            | 7647-01-0                                | 18.00000   | 0.02009  |          |
| WFRA-405               | U.S. Well Services      | Friction Reducer |  |  |  |  |          |
|                        |                         |                  | Water  | 7732-18-5                                | 60.00000   | 0.03745  |          |
|                        |                         |                  | 2-Propenoic acid, polymer with 2-propenamido | 29003-06-9                               | 30.00000   | 0.01873  |          |
|                        |                         |                  | Hydrated light distillate (petroleum)        | 64742-47-8                               | 30.00000   | 0.01507  |          |
|                        |                         |                  | Ethoxylated alcohol blend                    | 68002-97-1                               | 4.00000  | 0.00250  |          |

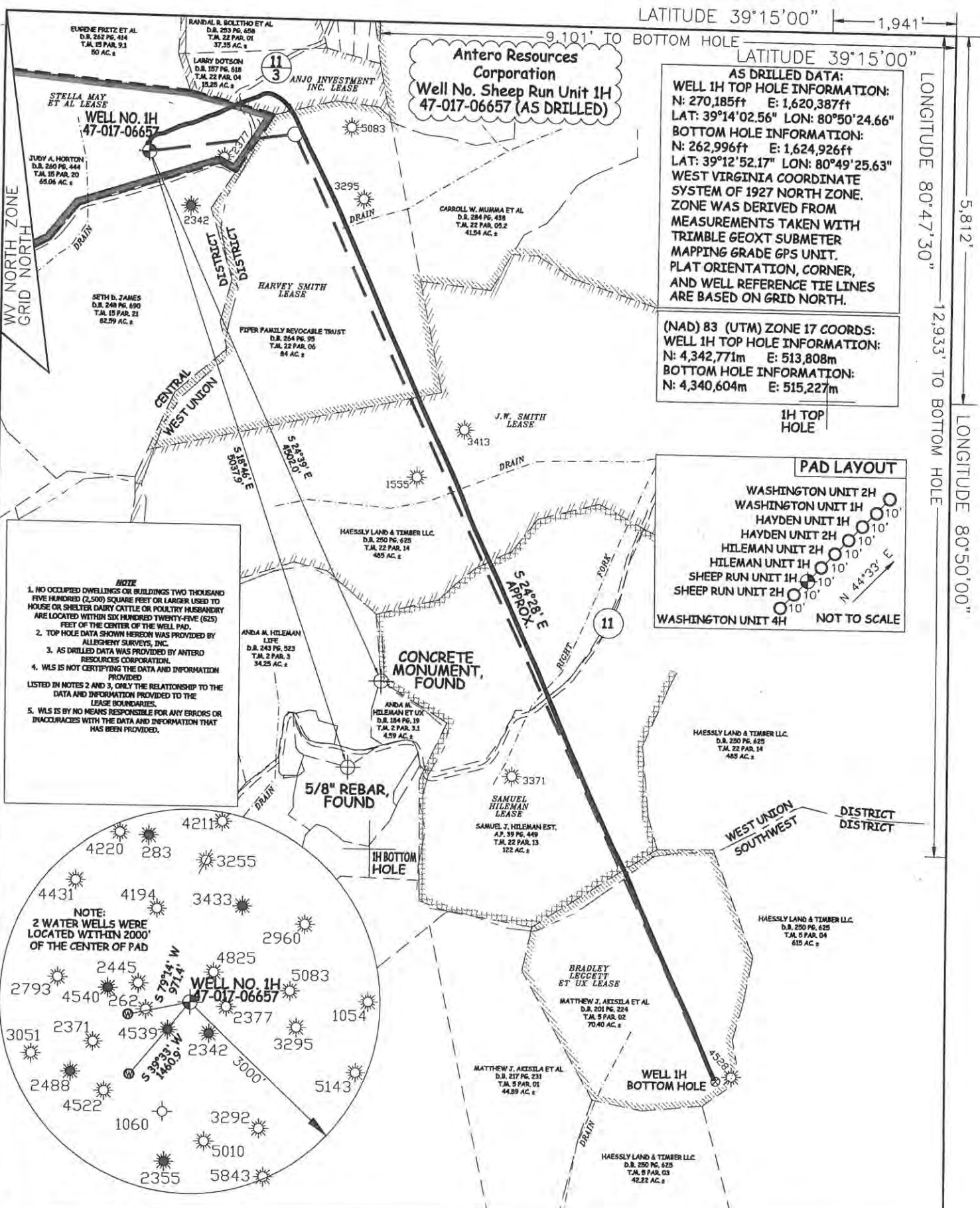


|  |                    |                           |   |            |  |           |         |  |
|--|--------------------|---------------------------|---|------------|--|-----------|---------|--|
| SI-1100  | U.S. Well Services | Scale Inhibitor           |   |            |  |           |         |  |
|  |                    |                           | Water   | 7732-18-5  |  | 80.00000  | 0.00990 |  |
|  |                    |                           | Ethylene Glycol   | 107-21-1   |  | 25.00000  | 0.00350 |  |
|  |                    |                           | Copolymer of Maleic and Acrylic acid                                    | 62255-49-9 |  | 10.00000  | 0.00146 |  |
|  |                    |                           | Potassium salt of diethylene triamine penta (methylene phosphonic acid) | 15827-60-8 |  | 7.50000   | 0.00125 |  |
|  |                    |                           | Phosphino carboxylic acid polymer                                       | 71050-62-9 |  | 5.00000   | 0.00080 |  |
|  |                    |                           | Hexamethylene tramine penta (methylene phosphonic acid)                 | 34690-00-1 |  | 5.00000   | 0.00080 |  |
|  |                    |                           | Hexamethylene diamine penta (methylene phosphonic acid)                 | 23605-74-5 |  | 2.00000   | 0.00032 |  |
| K-BAC 1020   | U.S. Well Services | Anti-Bacterial Agent      |   |            |  |           |         |  |
|  |                    |                           | 2,2-dibromo-3-nitropropionamide   | 10222-01-2 |  | 20.00000  | 0.00421 |  |
|  |                    |                           | Deionized Water   | 7732-18-5  |  | 28.00000  | 0.00241 |  |
| AP One   | U.S. Well Services | Gel Breakers              |   |            |  |           |         |  |
|  |                    |                           | Ammonium Persulfate   | 7727-54-0  |  | 100.00000 | 0.00181 |  |
| AI-302   | U.S. Well Services | Acid Corrosion Inhibitors |   |            |  |           |         |  |
|  |                    |                           | Water   | 7732-18-5  |  | 95.00000  | 0.00037 |  |
|  |                    |                           | 2-Propyn-1-olcompound with methylxirane                                 | 38172-91-7 |  | 15.00000  | 0.00006 |  |
| 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

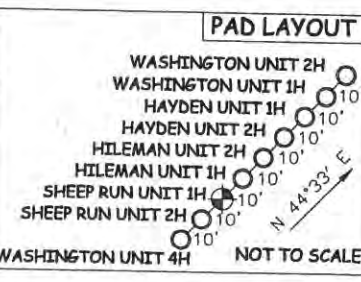
\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

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)



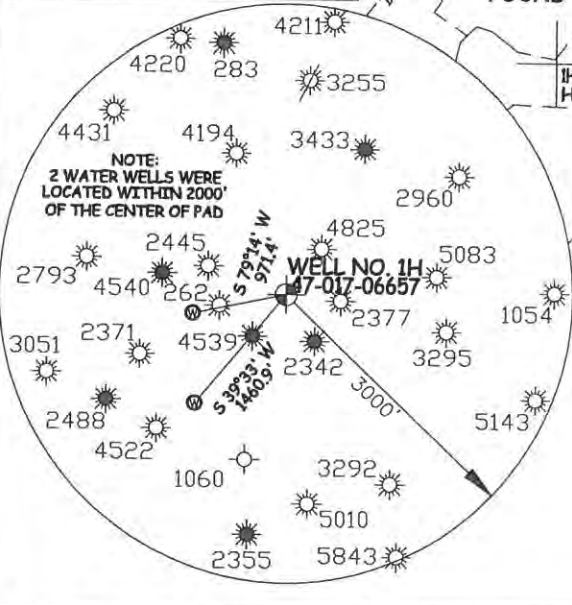
**AS DRILLED DATA:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 270,185ft E: 1,620,387ft  
 LAT: 39°14'02.56" LON: 80°50'24.66"  
**BOTTOM HOLE INFORMATION:**  
 N: 262,996ft E: 1,624,926ft  
 LAT: 39°12'52.17" LON: 80°49'25.63"  
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

**(NAD) 83 (UTM) ZONE 17 COORDS:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 4,342,771m E: 513,808m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,340,604m E: 515,227m



**NOTE**

1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDREDS (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



JOB # **14-086WA**  
 DRAWING # **SHEEPRUN1HAD**  
 SCALE **1" = 1000'**  
 MINIMUM DEGREE OF ACCURACY **SUBMETER**  
 PROVEN SOURCE OF ELEV. **SUBMETER MAPPING GRADE GPS**



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
 WILLOW LAND SURVEYING PLLC  
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

**LEGEND**

- Surface Owner Boundary Lines +/-
- - - Interior Surface Tracts +/-
- - - Existing Fence
- ⊕ Found monument, as noted
- Proposed Well Path
- ⊗ As Drilled Well Path

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS  
 WELL TYPE: OIL \_\_\_ GAS  LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
 (IF "GAS") PRODUCTION  STORAGE \_\_\_ DEEP \_\_\_ SHALLOW

LOCATION: ELEVATION **1,066' ORIGINAL - 1,053' AS DRILLED** WATERSHED **NORTH FORK HUGHES RIVER**  
 QUADRANGLE **OXFORD 7.5'** DISTRICT **CENTRAL (TH) WEST UNION (LP) SOUTHWEST (BH)** COUNTY **DODDRIDGE**  
 SURFACE OWNER **JUDY A. HORTON** ACREAGE **65.06 ACRES +/-**  
 OIL & GAS ROYALTY OWNER **STELLA MAY ET AL; ANJO INVESTMENTS INC.; HARVEY SMITH; J.W. SMITH; SAMUEL HILEMAN; BRADLEY LEGGETT ET UX** LEASE ACREAGE **125.5 ACRES±; 50 ACRES±; 450 ACRES±; 486 ACRES±; 122 ACRES±; 70.4 ACRES±**  
 PROPOSED WORK: DRILL \_\_\_ CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE \_\_\_  
 PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) **(X) AS DRILLED** PLUG & ABANDON \_\_\_ CLEAN OUT & REPLUG \_\_\_  
 TARGET FORMATION **MARCELLUS** ESTIMATED DEPTH **6,498' TVD 15,058' MD**  
 WELL OPERATOR **ANTERO RESOURCES CORP.** DESIGNATED AGENT **DIANNA STAMPER**  
 ADDRESS **1615 WYNKOOP STREET** ADDRESS **CT CORPORATION SYSTEM**  
**FORM WW-6 DENVER, CO 80202** **5400 D BIG TYLER ROAD CHARLESTON, WV 25313**

LATITUDE 39°15'00" TO BOTTOM HOLE  
 LONGITUDE 80°47'30" TO BOTTOM HOLE  
 LONGITUDE 80°50'00"

COUNTY NAME PERMIT