

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

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WV Department of  
Environmental Protection

API 47-095-02304 County Tyler District Centerville  
Quad Middlebourne 7.5' Pad Name Estlack Pad Field/Pool Name ---  
Farm name Edna Monroe Well Number Matthews Unit 1H  
Operator (as registered with the OOG) Antero Resources Corporation  
Address 1615 Wynkoop Street 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 4362775m Easting 510498m  
Landing Point of Curve Northing 4362771.571m Easting 510211.801m  
Bottom Hole Northing 4365662m Easting 509185m

Elevation (ft) 1142' 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 09/08/2015 Date drilling commenced 12/01/2015 Date drilling ceased 02/19/2016  
Date completion activities began 08/02/2016 Date completion activities ceased 11/19/2016  
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 46', 98' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 748', 1222' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 228', 1128', 1628' Cavern(s) encountered (Y/N) depths No

Is coal being mined in area (Y/N) No

**APPROVED**

NAME: Sen on 10  
DATE: 9-19-17

Reviewed by:

DWH

02/16/2018

API 47-095 - 02304 Farm name Edna Monroe Well number Matthews 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                 | 24"       | 20"         | 72'    | New         | 94#, J-55   | N/A             | Y   |
| Surface                   | 17- 1/2"  | 13- 3/8"    | 415'   | New         | 48#, H-40   | N/A             | Y   |
| Coal                      |           |             |        |             |             |                 |   |
| Intermediate 1            | 12-1/4"   | 9-5/8"      | 2537'  | New         | 36#, J-55   | N/A             | Y   |
| Intermediate 2            |           |             |        |             |             |                 |   |
| Intermediate 3            |           |             |        |             |             |                 |   |
| Production                | 8-3/4"    | 5-1/2"      | 17138' | New         | 23#, P-110  | N/A             | Y   |
| Tubing                    |           | 2-3/8"      | 6806'  |             | 4.7#, N-80  |                 |   |
| Packer type and depth set |           | N/A         |        |             |             |                 |   |

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Comment Details \*Please note this well was drilled to 17242', however casing was only ran to 17138'

| 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      | Class A              | 143 sx                        | 15.6                     | 1.18                         | 169                       | 0                              | 8 Hrs.    |
| Surface        | Class A              | 471 sx                        | 15.6                     | 1.19                         | 560                       | 0                              | 8 Hrs.    |
| Coal           |                      |                               |                          |                              |                           |                                |           |
| Intermediate 1 | Class A              | 984 sx                        | 15.6                     | 1.18                         | 1161                      | 0                              | 8 Hrs.    |
| Intermediate 2 |                      |                               |                          |                              |                           |                                |           |
| Intermediate 3 |                      |                               |                          |                              |                           |                                |           |
| Production     | Class H              | 850 sx (Lead), 1550 sx (Tail) | 14.5 (Lead), 15.2 (Tail) | 1.33 (Lead), 1.83 (Tail)     | 3967                      | -500' into Intermediate Casing | 8 Hrs.    |
| Tubing         |                      |                               |                          |                              |                           |                                |           |

Drillers TD (ft) 17242' MD, 6649' TVD (BHL & Deepest point drilled) Loggers TD (ft) 17194' MD

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6323'

\*\* This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Lucy Unit 1H API# 47-095-02276). Please reference the wireline logs submitted with Form WR-35 for the Lucy Unit 1H. 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 N/A

API 47- 095 - 02304 Farm name Edna Monroe Well number Matthews Unit 1H

PERFORATION RECORD

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

**\* PLEASE SEE ATTACHED EXHIBIT 1**

|  |  |  |  |  |  |
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Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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

**\* PLEASE SEE ATTACHED EXHIBIT 2**

|  |  |  |  |  |  |  |  |  |
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Please insert additional pages as applicable.

API 47- 095 - 02304 Farm name Edna Monroe Well number Matthews Unit 1H

| <u>PRODUCING FORMATION(S)</u> | <u>DEPTHS</u>   |                |
|-------------------------------|-----------------|----------------|
| Marcellus                     | 6546' (Top) TVD | 6943' (Top) MD |
|                               |                 |                |
|                               |                 |                |

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Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump  
 SHUT-IN PRESSURE Surface 4100 psi Bottom Hole --- psi DURATION OF TEST --- hrs  
 OPEN FLOW Gas 11857 mcfpd Oil 195 bpd NGL --- bpd Water 866 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 |  |
|  | 0                       |                    | 0                 |                   |  |
| <b>* PLEASE SEE ATTACHED EXHIBIT 3</b> |                         |                    |                   |                   |  |
|  |                         |                    |                   |                   |  |
|  |                         |                    |                   |                   |  |
|  |                         |                    |                   |                   |  |
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|  |                         |                    |                   |                   |  |
|  |                         |                    |                   |                   |  |

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling LLC  
 Address 562 Spring Run Rd City Pennsboro State WV Zip 26415  
 Logging Company Allied Horizontal Wireline Services  
 Address 381 Colonial Manor Rd City North Huntingdon State PA Zip 15642  
 Cementing Company C&J Energy Services  
 Address 1650 Hackers Creek City Jane Lew State WV Zip 26378  
 Stimulating Company Halliburton  
 Address 121 Champion Way Suite 200 City Canonsburg State PA Zip 15317

Please insert additional pages as applicable.

Completed by Samantha Klaas Telephone 303-357-6759  
 Signature *Samantha Klaas* Title Permitting Agent Date 08/18/2017

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

API 47-095-02304 Farm Name Edna Monroe Well Number Matthews Unit 1H

**EXHIBIT 1**

| Stage No. | Perforation Date | Perforated from MD ft. | Perforated to MD ft. | Number of Perforations | Formations |
|-----------|------------------|------------------------|----------------------|------------------------|------------|
| 1         | 8/2/2016         | 16906                  | 17073                | 60                     | Marcellus  |
| 2         | 8/3/2016         | 16707                  | 16874                | 60                     | Marcellus  |
| 3         | 8/4/2016         | 16509                  | 16676                | 60                     | Marcellus  |
| 4         | 8/4/2016         | 16311                  | 16478                | 60                     | Marcellus  |
| 5         | 8/5/2016         | 16113                  | 16280                | 60                     | Marcellus  |
| 6         | 8/5/2016         | 15914                  | 16082                | 60                     | Marcellus  |
| 7         | 8/6/2016         | 15716                  | 15883                | 60                     | Marcellus  |
| 8         | 8/6/2016         | 15518                  | 15685                | 60                     | Marcellus  |
| 9         | 8/7/2016         | 15320                  | 15487                | 60                     | Marcellus  |
| 10        | 8/7/2016         | 15122                  | 15289                | 60                     | Marcellus  |
| 11        | 8/8/2016         | 14923                  | 15091                | 60                     | Marcellus  |
| 12        | 8/8/2016         | 14725                  | 14892                | 60                     | Marcellus  |
| 13        | 8/10/2016        | 14527                  | 14694                | 60                     | Marcellus  |
| 14        | 8/10/2016        | 14329                  | 14496                | 60                     | Marcellus  |
| 15        | 8/11/2016        | 14131                  | 14298                | 60                     | Marcellus  |
| 16        | 8/11/2016        | 13932                  | 14100                | 60                     | Marcellus  |
| 17        | 8/12/2016        | 13734                  | 13901                | 60                     | Marcellus  |
| 18        | 8/13/2016        | 13536                  | 13703                | 60                     | Marcellus  |
| 19        | 8/14/2016        | 13338                  | 13505                | 60                     | Marcellus  |
| 20        | 8/14/2016        | 13140                  | 13307                | 60                     | Marcellus  |
| 21        | 8/15/2016        | 12941                  | 13109                | 60                     | Marcellus  |
| 22        | 8/15/2016        | 12743                  | 12910                | 60                     | Marcellus  |
| 23        | 8/16/2016        | 12545                  | 12712                | 60                     | Marcellus  |
| 24        | 8/17/2016        | 12347                  | 12514                | 60                     | Marcellus  |
| 25        | 8/17/2016        | 12148                  | 12316                | 60                     | Marcellus  |
| 26        | 8/17/2016        | 11950                  | 12117                | 60                     | Marcellus  |
| 27        | 8/18/2016        | 11752                  | 11919                | 60                     | Marcellus  |
| 28        | 8/18/2016        | 11554                  | 11721                | 60                     | Marcellus  |
| 29        | 8/19/2016        | 11356                  | 11523                | 60                     | Marcellus  |
| 30        | 8/19/2016        | 11157                  | 11325                | 60                     | Marcellus  |
| 31        | 8/20/2016        | 10959                  | 11126                | 60                     | Marcellus  |
| 32        | 8/20/2016        | 10761                  | 10928                | 60                     | Marcellus  |
| 33        | 8/21/2016        | 10563                  | 10730                | 60                     | Marcellus  |
| 34        | 8/21/2016        | 10365                  | 10532                | 60                     | Marcellus  |
| 35        | 8/21/2016        | 10166                  | 10334                | 60                     | Marcellus  |
| 36        | 8/22/2016        | 9968                   | 10135                | 60                     | Marcellus  |
| 37        | 8/22/2016        | 9770                   | 9937                 | 60                     | Marcellus  |
| 38        | 8/22/2016        | 9572                   | 9739                 | 60                     | Marcellus  |
| 39        | 8/23/2016        | 9374                   | 9541                 | 60                     | Marcellus  |
| 40        | 8/23/2016        | 9175                   | 9343                 | 60                     | Marcellus  |
| 41        | 8/24/2016        | 8977                   | 9144                 | 60                     | Marcellus  |
| 42        | 8/24/2016        | 8779                   | 8946                 | 60                     | Marcellus  |
| 43        | 8/24/2016        | 8581                   | 8748                 | 60                     | Marcellus  |
| 44        | 8/25/2016        | 8382                   | 8550                 | 60                     | Marcellus  |
| 45        | 8/25/2016        | 8184                   | 8351                 | 60                     | Marcellus  |
| 46        | 8/26/2016        | 7986                   | 8153                 | 60                     | Marcellus  |
| 47        | 8/26/2016        | 7788                   | 7955                 | 60                     | Marcellus  |
| 48        | 8/27/2016        | 7590                   | 7757                 | 60                     | Marcellus  |
| 49        | 8/27/2016        | 7391                   | 7559                 | 60                     | Marcellus  |
| 50        | 8/28/2016        | 7193                   | 7360                 | 60                     | Marcellus  |
| 51        | 8/29/2016        | 6995                   | 7162                 | 60                     | Marcellus  |

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02/16/2018

API 47-095-02304 Farm Name Edna Monroe Well Number Matthews 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         | 8/3/2016          | 74.9          | 7477                         | 5308                         | 4755       | 302381                   | 7906                   | N/A                               |
| 2         | 8/3/2016          | 75.2          | 7361                         | 5660                         | 4188       | 302725                   | 7832                   | N/A                               |
| 3         | 8/4/2016          | 72.0          | 7481                         | 5300                         | 3673       | 305668                   | 7813                   | N/A                               |
| 4         | 8/4/2016          | 72.4          | 7330                         | 4909                         | 3656       | 305362                   | 7811                   | N/A                               |
| 5         | 8/5/2016          | 71.8          | 7324                         | 5584                         | 3882       | 302203                   | 7800                   | N/A                               |
| 6         | 8/5/2016          | 65.3          | 7393                         | 5228                         | 4814       | 302106                   | 10017                  | N/A                               |
| 7         | 8/6/2016          | 74.6          | 7338                         | 5512                         | 3975       | 303368                   | 7690                   | N/A                               |
| 8         | 8/6/2016          | 72.6          | 7257                         | 6296                         | 3678       | 303267                   | 7824                   | N/A                               |
| 9         | 8/7/2016          | 70.9          | 7194                         | 6589                         | 3930       | 304111                   | 9235                   | N/A                               |
| 10        | 8/7/2016          | 73.1          | 7094                         | 6051                         | 3759       | 304067                   | 7749                   | N/A                               |
| 11        | 8/8/2016          | 71.6          | 7003                         | 5732                         | 3590       | 302643                   | 7715                   | N/A                               |
| 12        | 8/8/2016          | 71.4          | 7240                         | 5893                         | 4048       | 302044                   | 9561                   | N/A                               |
| 13        | 8/10/2016         | 72.8          | 7095                         | 5734                         | 3640       | 302098                   | 7733                   | N/A                               |
| 14        | 8/10/2016         | 77.1          | 7131                         | 5845                         | 3487       | 303359                   | 7747                   | N/A                               |
| 15        | 8/11/2016         | 72.8          | 7391                         | 5559                         | 4819       | 297520                   | 9534                   | N/A                               |
| 16        | 8/11/2016         | 71.9          | 7109                         | 5506                         | 5287       | 303241                   | 8488                   | N/A                               |
| 17        | 8/12/2016         | 74.8          | 7120                         | 5218                         | 3350       | 303604                   | 7615                   | N/A                               |
| 18        | 8/13/2016         | 74.0          | 6790                         | 5823                         | 3153       | 304215                   | 7702                   | N/A                               |
| 19        | 8/14/2016         | 73.1          | 6658                         | 5671                         | 3304       | 304047                   | 7744                   | N/A                               |
| 20        | 8/14/2016         | 72.8          | 6980                         | 5453                         | 3228       | 302409                   | 9120                   | N/A                               |
| 21        | 8/15/2016         | 73.4          | 6862                         | 5393                         | 3685       | 302827                   | 7778                   | N/A                               |
| 22        | 8/15/2016         | 73.3          | 6813                         | 5627                         | 3453       | 301195                   | 7708                   | N/A                               |
| 23        | 8/16/2016         | 76.7          | 6825                         | 5371                         | 3513       | 300609                   | 7793                   | N/A                               |
| 24        | 8/17/2016         | 73.6          | 7042                         | 5469                         | 4530       | 288344                   | 8112                   | N/A                               |
| 25        | 8/17/2016         | 76.0          | 7259                         | 5653                         | 3118       | 302167                   | 8739                   | N/A                               |
| 26        | 8/17/2016         | 72.0          | 6737                         | 5383                         | 3151       | 302156                   | 7641                   | N/A                               |
| 27        | 8/18/2016         | 73.8          | 6943                         | 5737                         | 3284       | 301991                   | 8887                   | N/A                               |
| 28        | 8/18/2016         | 70.8          | 6409                         | 5344                         | 3291       | 303721                   | 7739                   | N/A                               |
| 29        | 8/19/2016         | 76.4          | 6971                         | 5663                         | 3618       | 305742                   | 7600                   | N/A                               |
| 30        | 8/19/2016         | 70.5          | 6646                         | 5284                         | 3113       | 303232                   | 7473                   | N/A                               |
| 31        | 8/20/2016         | 76.6          | 6417                         | 5233                         | 3282       | 299916                   | 8544                   | N/A                               |
| 32        | 8/20/2016         | 74.9          | 6683                         | 5698                         | 3405       | 302775                   | 7633                   | N/A                               |
| 33        | 8/21/2016         | 70.2          | 6387                         | 5247                         | 3196       | 303380                   | 7510                   | N/A                               |
| 34        | 8/21/2016         | 75.4          | 6645                         | 5536                         | 3591       | 304536                   | 7581                   | N/A                               |
| 35        | 8/21/2016         | 74.7          | 6546                         | 5531                         | 3322       | 303298                   | 7432                   | N/A                               |
| 36        | 8/22/2016         | 75.0          | 6405                         | 5514                         | 3252       | 302674                   | 7566                   | N/A                               |
| 37        | 8/22/2016         | 73.5          | 6388                         | 5652                         | 3240       | 300557                   | 8120                   | N/A                               |
| 38        | 8/22/2016         | 73.3          | 6563                         | 5654                         | 3718       | 302432                   | 7527                   | N/A                               |
| 39        | 8/23/2016         | 76.6          | 6612                         | 6042                         | 3440       | 307983                   | 7642                   | N/A                               |
| 40        | 8/23/2016         | 72.5          | 6436                         | 5463                         | 3394       | 303874                   | 7464                   | N/A                               |
| 41        | 8/24/2016         | 72.3          | 6611                         | 5397                         | 3367       | 303465                   | 7545                   | N/A                               |
| 42        | 8/24/2016         | 75.3          | 6765                         | 550                          | 3069       | 304078                   | 7456                   | N/A                               |
| 43        | 8/24/2016         | 73.3          | 6548                         | 5709                         | 3676       | 301929                   | 7390                   | N/A                               |
| 44        | 8/25/2016         | 76.4          | 6882                         | 6497                         | 3295       | 302748                   | 7422                   | N/A                               |
| 45        | 8/25/2016         | 76.9          | 6955                         | 6496                         | 3489       | 305850                   | 7406                   | N/A                               |
| 46        | 8/26/2016         | 75.8          | 6539                         | 6290                         | 3476       | 303994                   | 8005                   | N/A                               |
| 47        | 8/26/2016         | 74.4          | 6413                         | 5766                         | 3152       | 302657                   | 7390                   | N/A                               |
| 48        | 8/27/2016         | 76.2          | 6536                         | 6270                         | 2982       | 302378                   | 7396                   | N/A                               |
| 49        | 8/27/2016         | 78.4          | 6647                         | 5417                         | 3117       | 303452                   | 7454                   | N/A                               |
| 50        | 8/28/2016         | 76.7          | 6325                         | 6390                         | 3476       | 310700                   | 7591                   | N/A                               |
| 51        | 8/29/2016         | 81.7          | 6235                         | 4857                         | 3121       | 301316                   | 6013                   | N/A                               |
|           | AVG=              | 74.0          | 6,859                        | 5,549                        | 3,589      | 15,446,414               | 402,190                | TOTAL                             |

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**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          | 46'             | N/A                | 46'            | N/A               |
| Fresh Water          | 98'             | N/A                | 98'            | N/A               |
| Siltstone            | 0               | 228                | 0              | 228               |
| Coal                 | est. 228        | 248                | est. 228       | 248               |
| Sandstone/Siltstone  | est. 248        | 908                | est. 248       | 908               |
| Shale/Siltstone      | est. 908        | 1128               | est. 908       | 1128              |
| Coal                 | est. 1128       | 1148               | est. 1128      | 1148              |
| Shale                | est. 1148       | 1348               | est. 1148      | 1348              |
| Coal                 | est. 1348       | 1368               | est. 1348      | 1368              |
| Shale                | est. 1368       | 1448               | est. 1368      | 1448              |
| Sandstone/Siltstone  | est. 1448       | 1628               | est. 1448      | 1628              |
| Coal                 | est. 1628       | 1648               | est. 1628      | 1648              |
| Sandstone/Siltstone  | est. 1648       | 2036               | est. 1648      | 2039              |
| Big Lime             | 2036            | 2154               | 2039           | 2157              |
| Big Injun            | 2154            | 2698               | 2157           | 2701              |
| Gantz Sand           | 2698            | 2797               | 2701           | 2800              |
| Fifty Foot Sandstone | 2797            | 2909               | 2800           | 2912              |
| Gordon               | 2909            | 3209               | 2912           | 3212              |
| Fifth Sandstone      | 3209            | 3277               | 3212           | 3280              |
| Bayard               | 3277            | 3611               | 3280           | 3614              |
| Warren               | 3611            | 3989               | 3614           | 3992              |
| Speechley            | 3989            | 4707               | 3992           | 4723              |
| Bradford             | 4707            | 5098               | 4723           | 5147              |
| Benson               | 5098            | 5347               | 5147           | 5422              |
| Alexander            | 5347            | 5531               | 5422           | 5625              |
| Elk                  | 5531            | 5903               | 5625           | 6033              |
| Rhinstreet           | 5903            | 6221               | 6033           | 6379              |
| Sycamore             | 6221            | 6388               | 6379           | 6592              |
| Middlesex            | 6388            | 6488               | 6592           | 6773              |
| Burkett              | 6488            | 6516               | 6773           | 6844              |
| Tully                | 6516            | 6546               | 6844           | 6943              |
| Marcellus            | 6546            | N/A                | 6943           | N/A               |

\*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:                | 8/28/2016                    |
| Job End Date:                  | 8/29/2016                    |
| State:                         | West Virginia                |
| County:                        | Tyler                        |
| API Number:                    | 47-095-02304-00-00           |
| Operator Name:                 | Antero Resources Corporation |
| Well Name and Number:          | Matthews 1H                  |
| Latitude:                      | 39.41435278                  |
| Longitude:                     | -80.87822778                 |
| Datum:                         | NAD27                        |
| Federal Well:                  | NO                           |
| Indian Well:                   | NO                           |
| True Vertical Depth:           | 6,614                        |
| Total Base Water Volume (gal): | 17,585,971                   |
| 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  | 90.22546   | Density = 8.340 |
| Ingredients | Listed Above | Listed Above |             |  |  |  |                 |
|             |              |              | Water       | 7732-18-5                                | 100.00000  | 0.23286  |                 |

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|   |             |                     |  |              |  |  |  |
|---|-------------|---------------------|--|--------------|--|--|--|
| FDP-M1075-12  | Halliburton | Scale Inhibitor     |  |              |  |  |  |
|   |             |                     |  | Listed Below |  |  |  |
| SAND-PREMIUM WHITE-40/70, BULK                      | Halliburton | Proppant            |  |              |  |  |  |
|   |             |                     |  | Listed Below |  |  |  |
| WG-36 GELLING AGENT                                 | Halliburton | Gelling Agent       |  |              |  |  |  |
|   |             |                     |  | Listed Below |  |  |  |
| SP BREAKER  | Halliburton | Breaker             |  |              |  |  |  |
|   |             |                     |  | Listed Below |  |  |  |
| SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676) | Halliburton | Proppant            |  |              |  |  |  |
|   |             |                     |  | Listed Below |  |  |  |
| MC B-8614   | Halliburton | Biocide             |  |              |  |  |  |
|   |             |                     |  | Listed Below |  |  |  |
| HAI-OS ACID INHIBITOR                               | Halliburton | Corrosion Inhibitor |  |              |  |  |  |
|   |             |                     |  | Listed Below |  |  |  |
| FR-76   | Halliburton | Friction Reducer    |  |              |  |  |  |
|   |             |                     |  | Listed Below |  |  |  |

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|  |             |         |   |              |           |         |  |
|--|-------------|---------|---|--------------|-----------|---------|--|
| HYDROCHLORIC ACID  | Halliburton | Solvent |   |              |           |         |  |
|  |             |         |   | 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 | 9.49805 |  |
|  |             |         | Hydrochloric acid   | 7647-01-0    | 15.00000  | 0.02632 |  |
|  |             |         | Inorganic salt  | Proprietary  | 30.00000  | 0.02065 |  |
|  |             |         | Acrylamide acrylate copolymer   | Proprietary  | 30.00000  | 0.02065 | Denise Tuck,<br>Halliburton, 3000 N.<br>Sam Houston Pkwy E.,<br>Houston, TX 77032,<br>281-871-6226 |
|  |             |         | Hydrotreated light petroleum distillate   | 64742-47-8   | 30.00000  | 0.02065 |  |
|  |             |         | Ethylene Glycol   | 107-21-1     | 60.00000  | 0.00866 |  |
|  |             |         | Guar gum  | 9000-30-0    | 100.00000 | 0.00861 |  |
|  |             |         | Glutaraldehyde  | 111-30-8     | 30.00000  | 0.00268 |  |
|  |             |         | Telomer   | Proprietary  | 10.00000  | 0.00144 |  |
|  |             |         | Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides                          | 68424-85-1   | 5.00000   | 0.00045 |  |
|  |             |         | Sodium polyacrylate   | 9003-04-7    | 1.00000   | 0.00014 |  |
|  |             |         | Methanol  | 67-56-1      | 60.00000  | 0.00009 |  |
|  |             |         | Ethanol   | 64-17-5      | 1.00000   | 0.00009 |  |
|  |             |         | Sodium persulfate   | 7775-27-1    | 100.00000 | 0.00007 |  |
|  |             |         | Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide | 68527-49-1   | 30.00000  | 0.00004 |  |
|  |             |         | Ethoxylated alcohols  | Proprietary  | 30.00000  | 0.00004 |  |
|  |             |         | Fatty acids, tall oil   | Proprietary  | 30.00000  | 0.00004 |  |
|  |             |         | Olefins   | Proprietary  | 5.00000   | 0.00002 |  |
|  |             |         | Propargyl alcohol   | 107-19-7     | 10.00000  | 0.00001 |  |

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|  |  |  |                 |           |         |         |  |
|--|--|--|-----------------|-----------|---------|---------|--|
|  |  |  | Phosphoric acid | 7664-38-2 | 0.10000 | 0.00001 |  |
|  |  |  | Acrylic acid    | 79-10-7   | 0.01000 | 0.00000 |  |
|  |  |  | Sodium sulfate  | 7757-82-6 | 0.10000 | 0.00000 |  |

\* 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)

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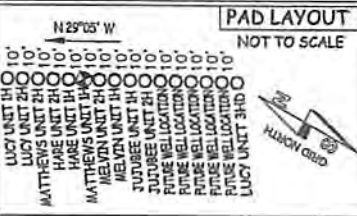
AUG 21 2017

WV Department of  
Environmental Protection

Antero Resources Corporation  
Well No. Matthews Unit 1H  
47-095-02304 (AS DRILLED)

AS DRILLED DATA:  
WELL 1H TOP HOLE INFORMATION:  
N: 336,012ft E: 1,610,619ft  
LAT: 39°24'51.67" LON: 80°52'41.61"  
BOTTOM HOLE INFORMATION:  
N: 345,559ft E: 1,606,471ft  
LAT: 39°26'25.38" LON: 80°53'36.35"  
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: 4,362,775m E: 510,498m  
BOTTOM HOLE INFORMATION:  
N: 4,365,662m E: 509,185m



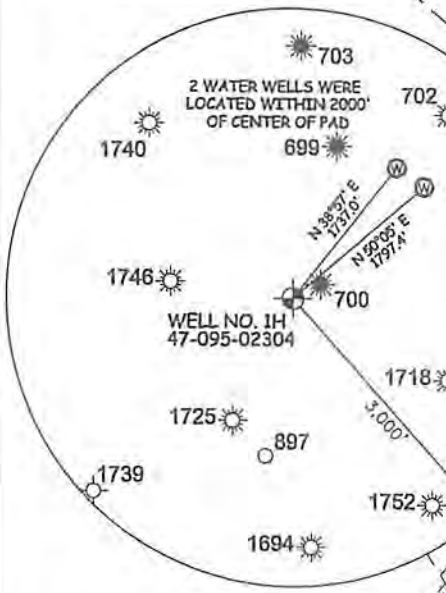
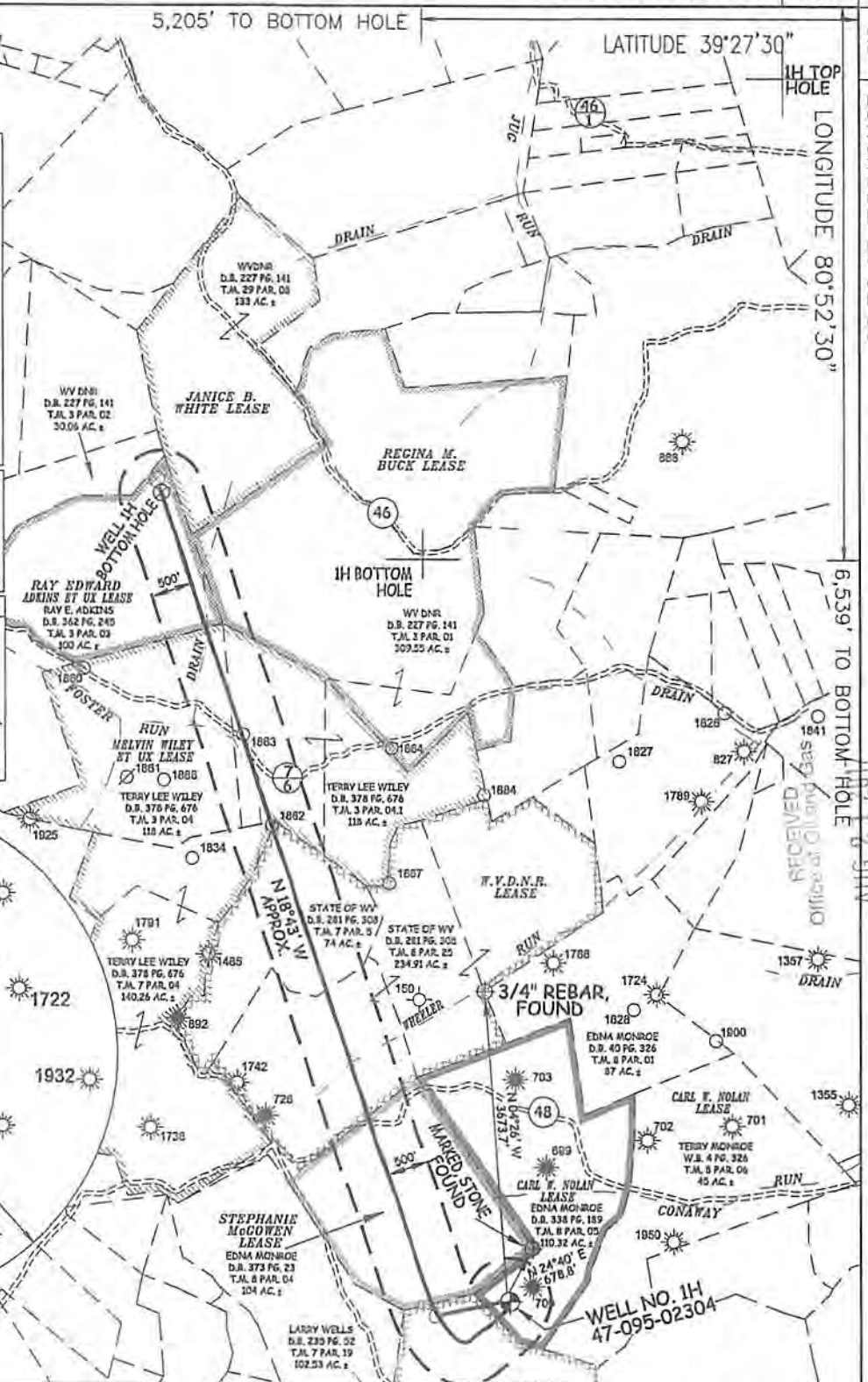
WV NORTH ZONE GRID NORTH

5,205' TO BOTTOM HOLE

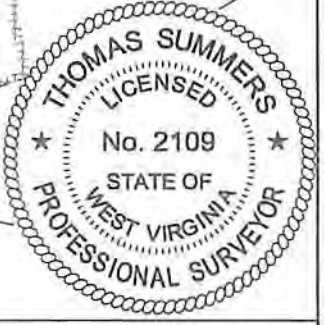
LATITUDE 39°27'30"

LONGITUDE 80°52'30"

6,539' TO BOTTOM HOLE



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



JOB # 15-010WA  
DRAWING # MATTHEWS1HADR  
SCALE 1" = 2000'  
MINIMUM DEGREE OF ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS  
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

LEGEND  
Surface Owner Boundary Lines +/-  
Interior Surface Tracts +/-  
Found monument, as noted  
Proposed Well Path  
As Drilled Well Path  
THOMAS SUMMERS P.S. 2109  
DATE 06/28/17  
OPERATOR'S WELL# MATTHEWS UNIT #1H

- NOTE  
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (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.

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 - 095 - 02304  
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT  
LOCATION: ELEVATION 1,142' -AS-DRILLED WATERSHED HEADWATERS MIDDLE ISLAND CREEK  
QUADRANGLE MIDDLEBOURNE 7.5' DISTRICT CENTERVILLE COUNTY TYLER  
SURFACE OWNER EDNA MONROE ACREAGE 110.32 ACRES +/-  
OIL & GAS ROYALTY OWNER CARL W. NOLAN; E. THOMAS ESTLACK ET UX; STEPHANIE MCGOWEN; LEASE ACREAGE 116 AC.±; 85.5 AC.±; 170 AC.±;  
W.V.D.N.R.; MELVIN WILEY ET UX; RAY EDWARD ADKINS ET UX 553.16 AC.±; 378 AC.±; 100 AC.±  
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 6,650' TVD 17,242' MD  
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM  
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD  
DENVER, CO 80202 CHARLESTON, WV 25313

02/16/2018

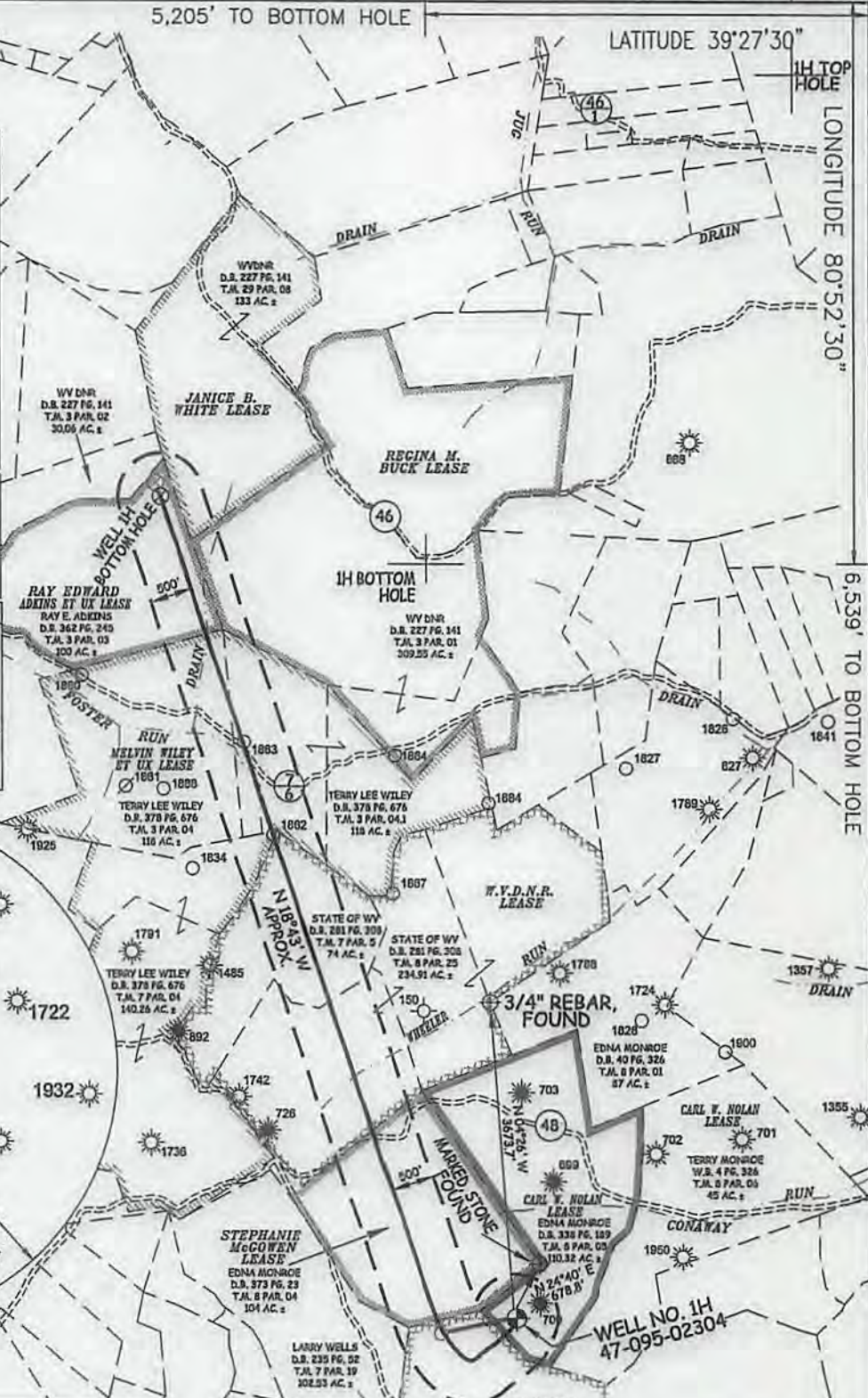
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WV NORTH ZONE GRID NORTH



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220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415



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PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS  
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

LEGEND  
- - - Surface Owner Boundary Lines +/-  
- - - Interior Surface Tracts +/-  
⊕ Found monument, as noted  
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