

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

API 47 - 033 - 05794 County Harrison District Tenmile
Quad Salem Pad Name Varner West Pad Field/Pool Name -----
Farm name James A. Varner Well Number Plaugher Unit 1H
Operator (as registered with the OOG) Antero Resources Appalachian 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 4345136.292m Easting 539077.295m
Landing Point of Curve Northing --- Easting ---
Bottom Hole Northing 4345121.477m Easting 539095.988m

Elevation (ft) 1456' 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

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Date permit issued 4/3/2013 Date drilling commenced 7/26/2014 Date drilling ceased 8/10/2014
Date completion activities began N/A Date completion activities ceased N/A
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 98', 295' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1279', 1775' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 142', 743', 1060' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:
SDW
6/16/2020

API 47-033 - 05794

Farm name James A. Varner

Well number Plaughter Unit 1H

| CASING STRINGS | Hole Size | Casing Size | Depth | New or Used | Grade wt/ft | Basket Depth(s) | Did cement circulate (Y/N) * Provide details below* |
|---------------------------|-----------|-------------|-------|-------------|-------------|-----------------|--|
| Conductor | 24" | 20" | 40' | New | 94#, H-40 | N/A | Y |
| Surface | 17-1/2" | 13-3/8" | 402' | New | 48#, H-40 | N/A | Y |
| Coal | | | | | | | |
| Intermediate 1 | 12-1/4" | 9-5/8" | 2551' | New | 36#, J-55 | N/A | Y |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | --- | --- | --- | --- | --- | --- | --- |
| Tubing | | | | | | | |
| Packer type and depth set | | N/A | | | | | |

Comment Details _____

| CEMENT DATA | Class/Type of Cement | Number of Sacks | Slurry wt (ppg) | Yield (ft ³ /sks) | Volume (ft ³) | Cement Top (MD) | WOC (hrs) |
|----------------|----------------------|-----------------|-----------------|------------------------------|---------------------------|-----------------|-----------|
| Conductor | Class A | 196 sx | 15.6 | 1.18 | 120 | 0' | 8 Hrs. |
| Surface | Class A | 484 sx | 15.6 | 1.18 | 826 | 0' | 8 Hrs. |
| Coal | | | | | | | |
| Intermediate 1 | Class A | 938 sx | 15.6 | 1.18 | 1181 | 0' | 8 Hrs. |
| Intermediate 2 | | | | | | | |
| Intermediate 3 | | | | | | | |
| Production | --- | --- | --- | --- | --- | --- | --- |
| Tubing | | | | | | | |

Drillers TD (ft) 2551' (Deepest Point Drilled)

Loggers TD (ft) N/A

Deepest formation penetrated N/A

Plug back to (ft) N/A

Plug back procedure N/A

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Kick off depth (ft) N/A

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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

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 47-033 - 05794 Farm name James A. Varner Well number Plaugher 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- 033 - 05794

Farm name James A. Varner

Well number Plaughter Unit 1H

PRODUCING FORMATION(S)

DEPTHS

| Marcellus | N/A (TOP) | TVD | N/A (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 --- psi Bottom Hole --- psi DURATION OF TEST --- hrs

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

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

***PLEASE SEE ATTACHED EXHIBIT 3**

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

Drilling Contractor Hall Drilling
Address 1137 E. Washington Avenue City Ellenboro State WV Zip 26346

Logging Company N/A
Address _____ City _____ State _____ Zip _____

Cementing Company Rush Wellsite Services
Address 1500 E. Dave Ward Drive City Conway State AR Zip 72032

Stimulating Company N/A
Address _____ City _____ State _____ Zip _____

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223
Signature  Title Permitting Agent Date 6-5-20

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

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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 |
| Siltstone | 46 | 166 | 46 | 166 |
| Sandstone | 166 | 286 | 166 | 286 |
| Shale | 286 | 466 | 286 | 466 |
| Siltstone w/trace coal | 466 | 646 | 466 | 646 |
| Sandstone | 646 | 766 | 646 | 766 |
| Siltstone | 766 | 846 | 766 | 846 |
| Limestone | 846 | 926 | 846 | 926 |
| Siltstone | 926 | 986 | 926 | 986 |
| Limestone and Siltstone | 986 | 1,146 | 986 | 1,146 |
| Shale | 1,146 | 1,266 | 1,146 | 1,266 |
| Siltstone and Sandstone | 1,266 | 1,426 | 1,266 | 1,426 |
| Shale and Siltstone | 1,426 | 1,496 | 1,426 | 1,496 |
| Siltstone and Sandstone | 1,496 | 2,206 | 1,496 | 2,206 |
| Siltstone w/trace coal | 2,206 | 2,246 | 2,206 | 2,246 |
| Shale | 2,246 | 2,286 | 2,246 | 2,286 |
| Siltstone and Sandstone | 2,286 | 2,321 | 2,286 | 2,321 |
| Big Lime | 2,335 | 2,913 | 2,321 | 2,913 |
| Fifty Foot Sandstone | 2,913 | 3,018 | 2,899 | 3,018 |
| Gordon | 3,018 | 3,346 | 3,004 | 3,346 |
| Fifth Sandstone | 3,346 | 3,375 | 3,332 | 3,375 |
| Bayard | 3,375 | 4,152 | 3,361 | 4,152 |
| Speechley | 4,152 | 4,460 | 4,138 | 4,460 |
| Balltown | 4,460 | 4,782 | 4,446 | 4,782 |
| Bradford | 4,782 | 5,311 | 4,768 | 5,311 |
| Benson | 5,311 | 5,603 | 5,297 | 5,603 |
| Alexander | 5,603 | 7,201 | 5,589 | 7,204 |
| Sycamore | 6,972 | 7,201 | 6,959 | 7,204 |
| Middlesex | 7,201 | 7,349 | 7,190 | 7,372 |
| Burkett | 7,349 | 7,378 | 7,358 | 7,411 |
| Tully | 7,378 | 7,531 | 7,397 | 7,700 |
| Marcellus | 7,531 | NA | 7,700 | 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.

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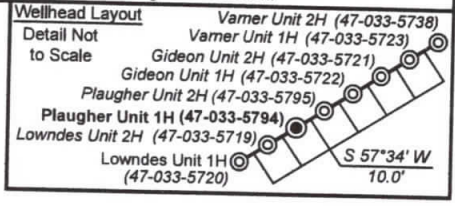
WV Department of
Environmental Protection

Antero Resources
Well No. Plaughter 1H
 As-Drilled
Antero Resources Corporation



Top Hole coordinates verified by survey grade GPS. As-drilled data and information was provided by Antero Resources Corporation. Allegheny Surveys, Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

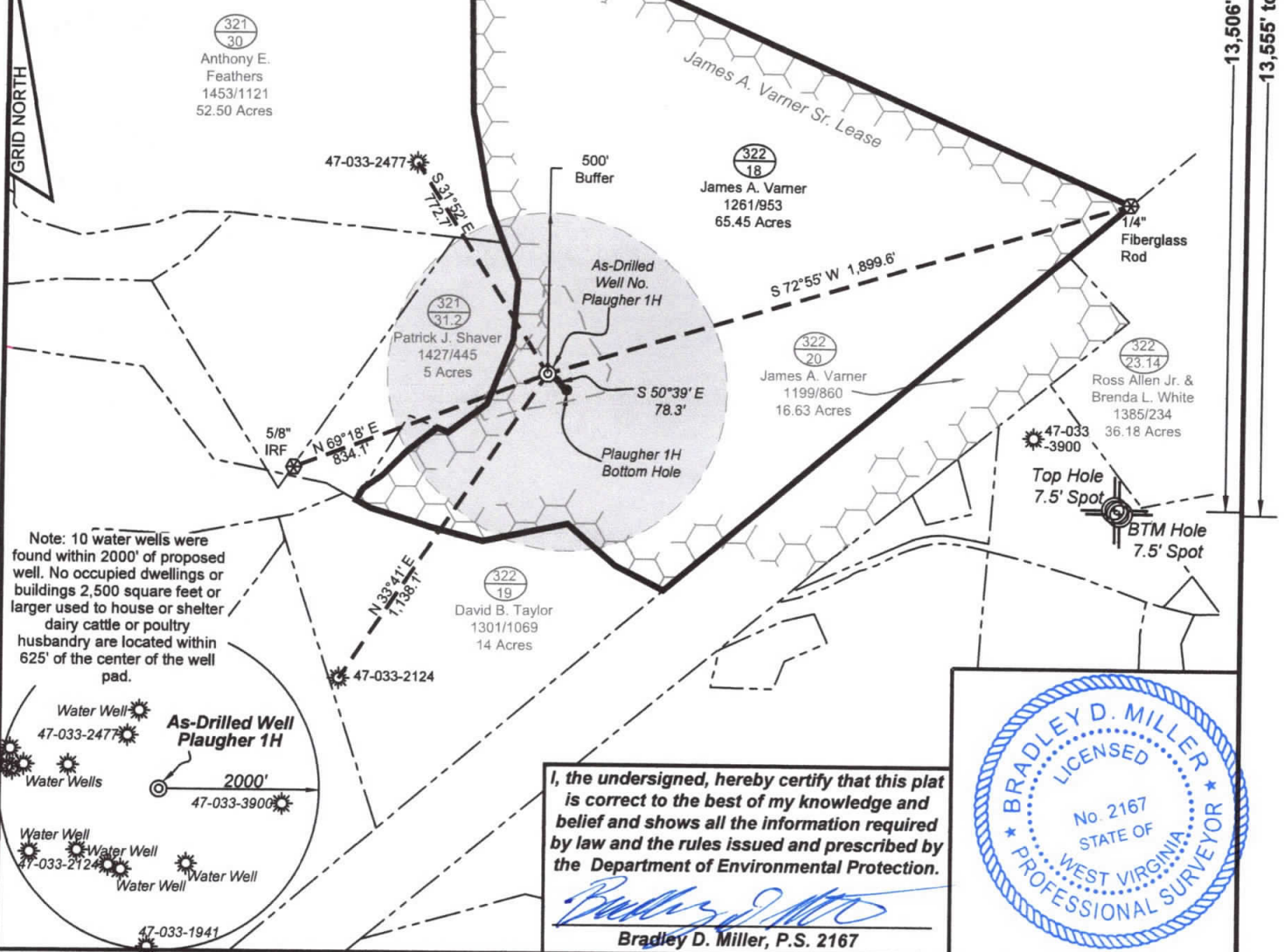
Notes:
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
 Well No. Plaughter Unit 1H Top Hole coordinates are
 N: 276,563.71 Latitude: 39°15'16.51"
 E: 1,703,438.14 Longitude: 80°32'50.18"
 Bottom Hole coordinates are
 N: 276,514.07 Latitude: 39°15'16.02"
 E: 1,703,498.67 Longitude: 80°32'49.40"
UTM Zone 17, NAD 1983
 Top Hole Coordinates: N: 4,345,136.292m E: 539,077.295m
 Bottom Hole Coordinates: N: 4,345,121.477m E: 539,095.988m
 Plat orientation and corner and well references are based upon the grid north meridian.
 Well location references are based upon the magnetic meridian.



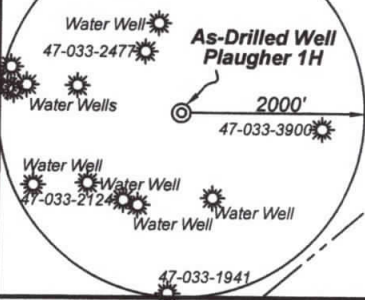
- Legend**
- ⊙ Proposed gas well
 - ⊗ Found corner, as noted
 - ☀ Existing Well, as noted
 - ☀ Digitized Well
 - Existing Road
 - Surface boundary (approx.)
 - - - Interior surface tracts (approx.)

1,526' to Bottom Hole
 1,587' to Top Hole
 LATITUDE 39 - 17 - 30
 LONGITUDE 80 - 32 - 30

13,506' to Top Hole
 13,555' to Bottom Hole

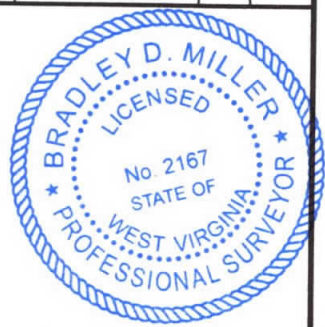


Note: 10 water wells were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



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 the rules issued and prescribed by the Department of Environmental Protection.

Bradley D. Miller
 Bradley D. Miller, P.S. 2167



FILE NO: 13-36-TM-12
 DRAWING NO: Plaughter 1H As-Drilled
 SCALE: 1" = 500'
 MINIMUM DEGREE OF ACCURACY: Submeter
 PROVEN SOURCE OF ELEVATION: WVDOT, Bridgeport, WV

STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: June 3 2020
 OPERATOR'S WELL NO. Plaughter 1H
 API WELL NO
 47 - 033 - 5794
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 1,456' WATERSHED: Tenmile Creek QUADRANGLE: Salem
 DISTRICT: Tenmile COUNTY: Harrison

SURFACE OWNER: James A. Varners ACREAGE: 65.45
 ROYALTY OWNER: James A. Varners Sr. LEASE NO: _____ ACREAGE: 69.394

PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 6,655' TVD
6,656' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313

