

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

API 47 - 033 - 05795 County Harrison District Tenmile
Quad Salem Pad Name Varner West Pad Field/Pool Name ----
Farm name James A. Varner Well Number Plaugher Unit 2H
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 4345138.072m Easting 539079.874m
Landing Point of Curve Northing --- Easting ---
Bottom Hole Northing 4345157.930m Easting 539055.502m

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 8/17/2014
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

No permit in AX

Reviewed by:
SPW
6/16/2020

API 47-033 - 05795 Farm name James A. Varner Well number Plaughter Unit 2H

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"	456'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2542'	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	550 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	933 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	---	---	---	---	---	---	---
Tubing							

Drillers TD (ft) 2542' (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 - 05795 Farm name James A. Varner Well number Plaughter Unit 2H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
*PLEASE SEE ATTACHED EXHIBIT 1					

Please insert additional pages as applicable.

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STIMULATION INFORMATION PER STAGE

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Complete a separate record for each stimulation stage.

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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								

Please insert additional pages as applicable.

API 47- 033 - 05795 Farm name James A. Varner Well number Plaughter Unit 2H

PRODUCING FORMATION(S)	DEPTHS			
	N/A (TOP)	TVD	N/A (TOP)	MD
Marcellus				

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		BOTTOM		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT	DEPTH IN FT	DEPTH IN FT	DEPTH IN FT	
	NAME TVD	TVD	MD	MD	
*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 Grimm Telephone 303-357-7223
Signature  Title Permitting Agent Date 6.5.20

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

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	5,312
Benson	5,311	5,603	5,298	5,611
Alexander	5,603	7,201	5,597	7,378
Sycamore	6,972	7,201	7,109	7,378
Middlesex	7,201	7,349	7,364	7,550
Burkett	7,349	7,378	7,536	7,588
Tully	7,378	7,531	7,574	7,878
Marcellus	7,531	NA	7,878	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 depth. RECEIVED
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1,659' to Bottom Hole

1,579' to Top Hole

LATITUDE 39 - 17 - 30

LONGITUDE 80 - 32 - 30

13,500' to Top Hole

13,454' to Bottom Hole

Antero Resources
Well No. Plaughter 2H
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 2H Top Hole coordinates are
N: 276,569.41 Latitude: 39°15'16.56"
E: 1,703,446.70 Longitude: 80°32'50.07"

Bottom Hole coordinates are
N: 276,616.22 Latitude: 39°15'17.02"
E: 1,703,367.48 Longitude: 80°32'51.09"
UTM Zone 17, NAD 1983

Top Hole Coordinates: N: 4,345,138.072m E: 539,079.874m
Bottom Hole Coordinates: N: 4,345,151.930m E: 539,055.502m

Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.

Wellhead Layout
Varnar Unit 2H (47-033-5738)
Detail Not to Scale
Gideon Unit 2H (47-033-5721)
Gideon Unit 1H (47-033-5722)
Plaughter Unit 2H (47-033-5795)
Plaughter Unit 1H (47-033-5794)
Lowndes Unit 2H (47-033-5719)
Lowndes Unit 1H (47-033-5720)
S 57°34' W
10.0'

Legend

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

321
30
Anthony E. Feathers
1453/1121
52.50 Acres

322
14
Charles F. & Rebecca Chong
1245/795
156 Acres

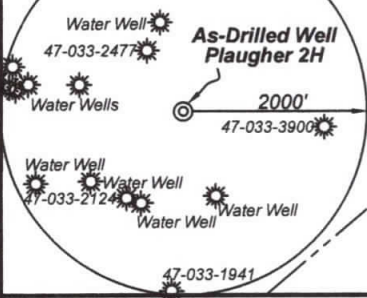
322
18
James A. Varnar
1261/953
65.45 Acres

322
20
James A. Varnar
1199/860
16.63 Acres

322
23 14
Ross Allen Jr. & Brenda L. White
1385/234
36.18 Acres

322
19
David B. Taylor
1301/1069
14 Acres

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 2H 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 2H
API WELL NO
47 - 033 - 5795
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. Varnar ACREAGE: 65.45
ROYALTY OWNER: James A. Varnar 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: 2,507' TVD
2,513' 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

