

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

API 47 - 033 - 05720 County Harrison District Tenmile  
Quad Salem Pad Name Varner West Pad Field/Pool Name -----  
Farm name James A. Varner Well Number Lowndes 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 4345132.843m Easting 539072.407m  
Landing Point of Curve Northing -- Easting --  
Bottom Hole Northing -- Easting --

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 N/A  
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

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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	---	---	---	---	---	---	---
Coal							
Intermediate 1	---	---	---	---	---	---	---
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 <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	196 sx	15.6	1.18	120	0'	8 Hrs.
Surface	---	---	---	---	---	---	---
Coal							
Intermediate 1	---	---	---	---	---	---	---
Intermediate 2							
Intermediate 3							
Production	---	---	---	---	---	---	---
Tubing							

Drillers TD (ft) 40' (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

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

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

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
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**\*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)
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**\*PLEASE SEE ATTACHED EXHIBIT 2**


Please insert additional pages as applicable.

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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 <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	

**\*PLEASE SEE ATTACHED EXHIBIT 3**

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					Environmental Protection

Please insert additional pages as applicable.

Drilling Contractor N/A  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Logging Company N/A  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Cementing Company N/A  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Stimulating Company N/A  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223  
 Signature [Signature] Title Permitting Agent Date 6.5.20

1,603' to Top Hole

LATITUDE 39 - 17 - 30

LONGITUDE 80 - 32 - 30

13,517' to Top Hole

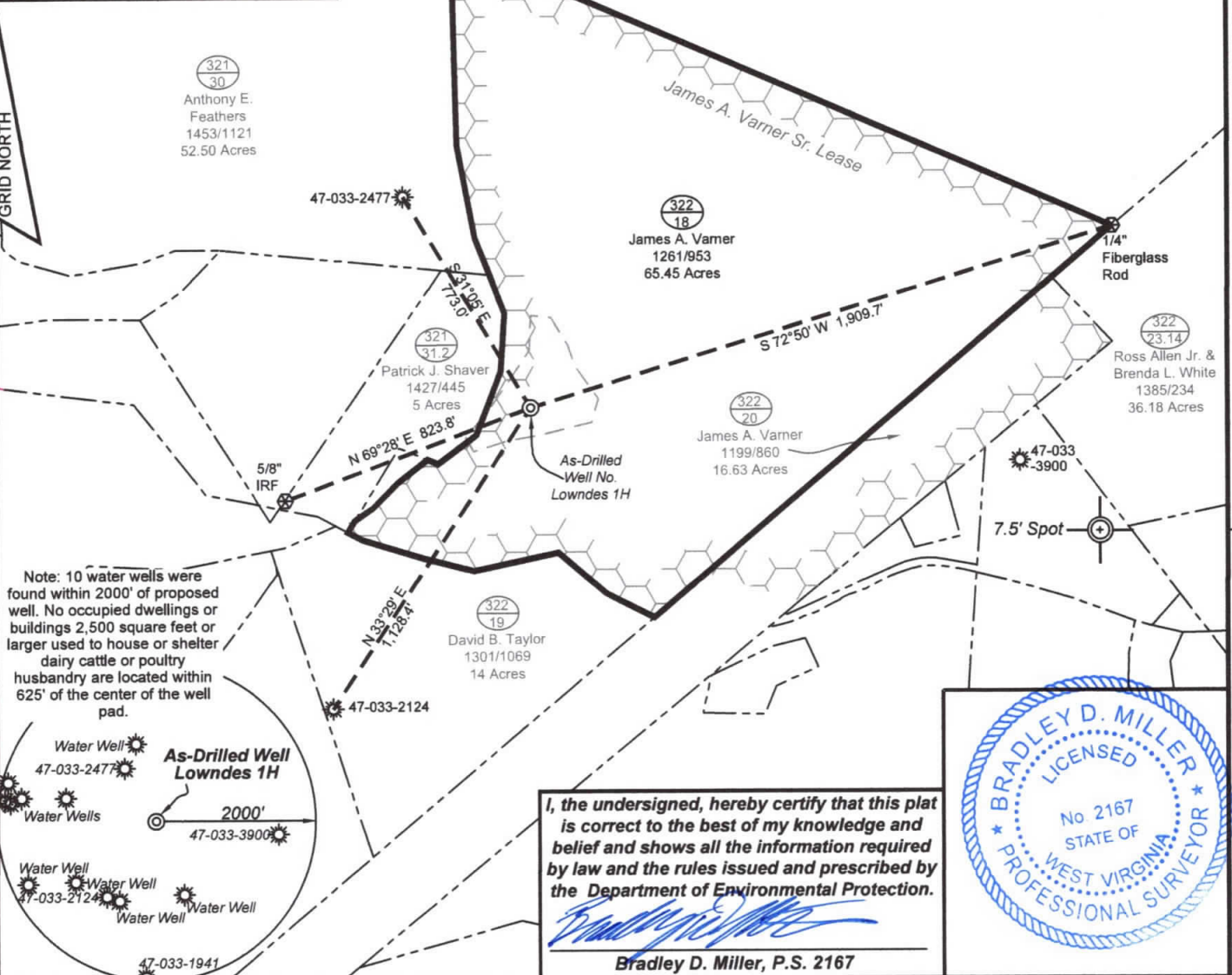
Antero Resources  
Well No. Lowndes 1H  
As-Drilled  
Antero Resources Corporation



Top Hole coordinates verified by survey grade GPS. As-drilled data and information was provided by Antero Resources Corporation. Allegany 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. Lowndes 1H coordinates are  
N: 276,552.66' Latitude: 39° 15' 16.39"  
E: 1,703,421.91' Longitude: 80° 32' 50.38"  
UTM Zone 17, NAD 1983 UTM Zone 17, NAD 1927  
Top Hole Coordinates Top Hole Coordinates  
N: 4,345,132.843m N: 14,254,940.20'  
E: 539,072.407m E: 1,768,558.87'  
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.)



FILE NO: 10-36-TM-12  
DRAWING NO: Lowndes 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. Lowndes 1H  
API WELL NO  
47 - 033 - 5720  
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: 40' TVD  
40' 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

