

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

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Office of Oil and Gas

OCT 29 2025

WV Department of  
Environmental Protection

API 47-017-06982 County Doddridge District McLellan  
Quad Center Point Pad Name Crimson Pad Field/Pool Name ----  
Farm name Shawn A. Glaspell Well Number Perna 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 4359521.548m Easting 527076.574m  
Landing Point of Curve Northing 4359292.08m Easting 526642.34m  
Bottom Hole Northing 4355806.309m Easting 527848.616m

Elevation (ft) 1222' 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 6/10/2024 Date drilling commenced 7/1/2024 Date drilling ceased 8/30/2024  
Date completion activities began 3/10/2025 Date completion activities ceased 5/27/2025  
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 303', 953' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 2123' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by:

APPRO

J. [Signature] 11-3-25  
03/13/2026

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WR-35  
Rev. 8/23/13

API 47-017 - 06982

Farm name Shawn A. Glaspell

WV Department of Environmental Protection  
Well number Perna 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	28"	20"	125.5'	New	91.59#, J-55	N/A	Y
Surface	17-1/2"	13-3/8"	1060'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	3241'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	19983'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7354'		4.7#, P-110		
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	158 sx	15.6	1.18	186	0'	8 Hrs.
Surface	Class A	880 sx	15.6	1.19	1047	0'	8 Hrs.
Coal							
Intermediate 1	Class H	1009 sx	15.6	1.18	1191	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	5515 sx (Tail)	13.5 (Lead), 15.2(Tail)	1.26 (Tail)	6949	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 19983' MD, 7193' TVD (BHL), 7206' (Deepest Point Drilled)

Loggers TD (ft) 19983' MD

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6521'

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

APPROVED  03/13/2026 3-25



API 47- 017 - 06982 Farm name Shawn A. Glaspell Well number Perna Unit 1H

PRODUCING FORMATION(S)	DEPTHS		
	DEPTH	TVD	MD
Marcellus	7113' (TOP)		7610' (TOP)

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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 3012 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 17437 mcfpd Oil 26 bpd NGL --- bpd Water 290 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	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**


Please insert additional pages as applicable.

Drilling Contractor H & P Drilling  
Address 912 N Eagle Valley Rd City Howard State PA Zip 16841

Logging Company Nine Energy Services  
Address 6500 West Fwy City Fort Worth State TX Zip 76116

Cementing Company Dowell Schlumberger  
Address 600 Industrial Dr City Beckley State WV Zip 25801

Stimulating Company Halliburton  
Address 3000 W. Sam Houston Pkwy City Houston State TX Zip 76114

Please insert additional pages as applicable.

Completed by Carly Wren Telephone 303-357-7373  
Signature [Signature] Title Permitting Agent Date 10/24/2025

APPROVED [Signature] 03/13/2026

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API 47-017-06982 Farm Name Shawn A. Glaspell Well Number Perna Unit 1H					
Exhibit 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	3/10/2025	19899	19854	60	Marcellus
2	3/11/2025	19815.69	19651.11	60	Marcellus
3	3/11/2025	19615.80	19451.23	60	Marcellus
4	3/12/2025	19415.92	19251.34	60	Marcellus
5	3/12/2025	19216.03	19051.46	60	Marcellus
6	3/13/2025	19016.14	18851.57	60	Marcellus
7	3/13/2025	18816.26	18651.69	60	Marcellus
8	3/14/2025	18616.37	18451.80	60	Marcellus
9	3/15/2025	18416.49	18251.92	60	Marcellus
10	3/15/2025	18216.60	18052.03	60	Marcellus
11	3/16/2025	18016.72	17852.15	60	Marcellus
12	3/16/2025	17816.83	17652.26	60	Marcellus
13	3/17/2025	17616.95	17452.38	60	Marcellus
14	3/17/2025	17417.06	17252.49	60	Marcellus
15	3/18/2025	17217.18	17052.61	60	Marcellus
16	3/18/2025	17017.29	16852.72	60	Marcellus
17	3/19/2025	16817.41	16652.84	60	Marcellus
18	3/19/2025	16617.52	16452.95	60	Marcellus
19	3/20/2025	16417.64	16253.07	60	Marcellus
20	3/20/2025	16217.75	16053.18	60	Marcellus
21	3/21/2025	16017.87	15853.30	60	Marcellus
22	3/21/2025	15817.98	15653.41	60	Marcellus
23	3/22/2025	15618.10	15453.52	60	Marcellus
24	3/22/2025	15418.21	15253.64	60	Marcellus
25	3/23/2025	15218.33	15053.75	60	Marcellus
26	3/23/2025	15018.44	14853.87	60	Marcellus
27	3/23/2025	14818.55	14653.98	60	Marcellus
28	3/24/2025	14618.67	14454.10	60	Marcellus
29	3/24/2025	14418.78	14254.21	60	Marcellus
30	3/25/2025	14218.90	14054.33	60	Marcellus
31	3/25/2025	14019.01	13854.44	60	Marcellus
32	3/26/2025	13819.13	13654.56	60	Marcellus
33	3/26/2025	13619.24	13454.67	60	Marcellus
34	3/27/2025	13419.36	13254.79	60	Marcellus
35	3/27/2025	13219.47	13054.90	60	Marcellus
36	3/28/2025	13019.59	12855.02	60	Marcellus
37	3/29/2025	12819.70	12655.13	60	Marcellus
38	3/29/2025	12619.82	12455.25	60	Marcellus
39	3/30/2025	12419.93	12255.36	60	Marcellus
40	3/30/2025	12220.05	12055.48	60	Marcellus
41	3/31/2025	12020.16	11855.59	60	Marcellus
42	4/1/2025	11820.28	11655.70	60	Marcellus
43	4/1/2025	11620.39	11455.82	60	Marcellus
44	4/2/2025	11420.51	11255.93	60	Marcellus
45	4/2/2025	11220.62	11056.05	60	Marcellus
46	4/3/2025	11020.73	10856.16	60	Marcellus
47	4/3/2025	10820.85	10656.28	60	Marcellus
48	4/4/2025	10620.96	10456.39	60	Marcellus
49	4/5/2025	10421.08	10256.51	60	Marcellus
50	4/5/2025	10221.19	10056.62	60	Marcellus
51	4/6/2025	10021.31	9856.74	60	Marcellus
52	4/6/2025	9821.42	9656.85	60	Marcellus
53	4/7/2025	9621.54	9456.97	60	Marcellus
54	4/8/2025	9421.65	9257.08	60	Marcellus
55	4/8/2025	9221.77	9057.20	60	Marcellus
56	4/11/2025	9021.88	8857.31	60	Marcellus
57	4/11/2025	8822.00	8657.43	60	Marcellus
58	4/11/2025	8622.11	8457.54	60	Marcellus
59	4/11/2025	8422.23	8257.66	60	Marcellus
60	4/11/2025	8222.34	8057.77	60	Marcellus
61	4/11/2025	8022.46	7857.89	60	Marcellus
62	4/11/2025	7822.57	7658.00	60	Marcellus

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API 47-017-06981 Farm Name Shawn A. Glasspell Well Number Glasspell 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	3/10/2025	73.8	10160.0	10720.2	3755.4	166540	4755.0	N/A
2	3/11/2025	97.4	10684.6	8095.3	4917.0	413840	7307.2	N/A
3	3/11/2025	93.5	9209.9	6472.2	4618.9	418540	7279.7	N/A
4	3/12/2025	95.1	9801.5	8030.7	5032.2	417000	7122.8	N/A
5	3/12/2025	98.3	10179.1	7436.3	5024.0	413120	6951.1	N/A
6	3/13/2025	96.1	10075.9	6903.1	5612.0	416320	7026.3	N/A
7	3/13/2025	98.2	10302.8	7136.9	5311.0	398260	6908.4	N/A
8	3/14/2025	96.6	9904.9	7239.8	5203.0	421780	7155.2	N/A
9	3/15/2025	99.1	10466.5	7409.5	4821.0	414820	7141.8	N/A
10	3/15/2025	96.5	10233.7	7560.9	4594.0	395620	7028.0	N/A
11	3/16/2025	97.8	9902.1	6830.6	5211.0	401230	7098.9	N/A
12	3/16/2025	96.7	10258.1	7440.5	4767.0	399060	7086.6	N/A
13	3/17/2025	95.2	9849.1	7772.3	4499.0	410760	7090.1	N/A
14	3/17/2025	96.5	10213.4	6621.1	4273.2	393260	7000.1	N/A
15	3/18/2025	95.9	10040.5	7081.9	4937.0	398050	7014.5	N/A
16	3/18/2025	95.9	9331.0	7170.8	4874.0	396410	6869.1	N/A
17	3/19/2025	96.8	9393.1	6612.7	4857.0	393610	6838.0	N/A
18	3/19/2025	97.7	9441.4	7180.6	4407.0	396600	6993.8	N/A
19	3/20/2025	97.7	9740.9	7057.1	4215.0	393610	6890.7	N/A
20	3/20/2025	96.8	9516.8	6550.1	4823.9	397840	7076.7	N/A
21	3/21/2025	97.2	9389.3	7072.2	4451.0	394860	6839.9	N/A
22	3/21/2025	97.6	9663.0	7092.8	4366.0	416320	7038.1	N/A
23	3/22/2025	98.4	9293.7	6484.1	4327.0	413540	6997.4	N/A
24	3/22/2025	97.1	9626.5	6901.3	5068.0	396960	6843.7	N/A
25	3/23/2025	98.1	9303.3	6830.6	4321.0	403420	6889.9	N/A
26	3/23/2025	99.5	9406.2	7301.3	4196.0	399070	6838.0	N/A
27	3/23/2025	98.6	9740.8	7060.8	4151.0	400070	6698.0	N/A
28	3/24/2025	94.4	9037.8	6780.5	3629.1	395360	6829.1	N/A
29	3/24/2025	97.1	9379.7	6618.8	4518.0	412520	7119.1	N/A
30	3/25/2025	97.1	8919.1	6959.7	4106.0	411800	6877.5	N/A
31	3/25/2025	96.4	9408.3	7053.0	4212.0	391560	6839.4	N/A
32	3/26/2025	99.1	9182.4	6543.5	4155.0	394175	6872.7	N/A
33	3/26/2025	98.1	9101.2	7057.7	4905.2	398730	6971.0	N/A
34	3/27/2025	98.6	8997.7	6554.7	4134.0	411520	7071.3	N/A
35	3/27/2025	98.9	9004.6	6756.5	4102.0	399270	6877.0	N/A
36	3/28/2025	98.8	8767.6	6986.4	5120.5	397750	6955.8	N/A
37	3/29/2025	97.9	8909.3	7060.0	4608.0	414200	7072.8	N/A
38	3/29/2025	99.2	8654.0	7443.4	4359.0	401170	6805.6	N/A
39	3/30/2025	97.8	8680.5	7009.4	4264.0	410240	7085.0	N/A
40	3/30/2025	92.3	8176.0	7117.9	4328.0	402370	7500.7	N/A
41	3/31/2025	98.2	8422.4	7281.1	4285.0	410920	7334.4	N/A
42	4/1/2025	97.8	8306.3	5151.4	4951.2	402210	7072.8	N/A
43	4/1/2025	100.0	8912.2	7442.3	4315.0	405580	7020.5	N/A
44	4/2/2025	97.7	8427.2	6724.6	4172.0	396780	6841.6	N/A
45	4/2/2025	98.8	8444.2	6458.8	4219.0	417420	6874.6	N/A
46	4/3/2025	97.6	8665.4	7545.5	3550.0	413620	6921.3	N/A
47	4/3/2025	98.9	8150.1	7224.8	3653.0	415920	6963.9	N/A
48	4/4/2025	100.4	8503.8	6472.6	4444.0	415400	6895.0	N/A
49	4/5/2025	97.6	8483.3	6900.3	4607.0	410640	6898.3	N/A
50	4/5/2025	98.7	8239.5	7259.2	5188.0	413140	6875.9	N/A
51	4/6/2025	98.5	8150.5	7044.5	4397.0	397740	6833.6	N/A
52	4/6/2025	99.4	7984.7	6741.5	5428.0	415340	6706.7	N/A
53	4/7/2025	99.4	7975.4	6876.9	4406.0	408780	7082.7	N/A
54	4/8/2025	98.1	8197.6	7311.3	4677.3	412680	6713.2	N/A
55	4/8/2025	98.6	7929.6	6785.1	4426.0	412440	6776.4	N/A
56	4/11/2025	85.2	8297.8	5164.8	3869.3	412840	8462.0	N/A
57	4/11/2025	97.3	7869.9	6340.5	3797.7	412080	6705.0	N/A
58	4/11/2025	97.4	7706.5	6134.9	4248.0	400660	6672.9	N/A
59	4/11/2025	97.3	7682.8	5953.8	4736.6	413880	6743.9	N/A
60	4/11/2025	98.3	7514.9	6344.0	4283.9	409400	7166.2	N/A
61	4/11/2025	98.1	7662.9	6080.2	4296.0	405740	7123.9	N/A
62	4/11/2025	98.0	7527.2	6009.0	4346.6	413340	6786.1	N/A
<b>AVERAGE</b>		<b>97</b>	<b>9,039</b>	<b>6,956</b>	<b>4,506</b>	<b>24,937,725</b>	<b>431,127</b>	<b>TOTAL</b>

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API 47-017-06982 Farm Name Shawn A. Glaspell Well Number Perna 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
Silty Sandstone	1,124	1,224	1,124	1,224
Sandstone, Occ Siltstone	1,224	1,274	1,224	1,274
Silty Sandstone, tr coal	1,274	1,424	1,274	1,424
Silty Sandstone	1,374	1,524	1,374	1,524
Sandstone, Siltstone	1,424	1,524	1,424	1,524
Silty Sandstone, tr coal	1,524	1,574	1,524	1,574
Silty Sandstone	1,574	1,624	1,574	1,624
Silty Sandstone, tr coal	1,624	1,674	1,624	1,674
Sandstone, Siltstone	1,674	1,774	1,674	1,774
Sandstone, Siltstone, tr coal	1,774	1,874	1,774	1,874
Silty Sandstone	1,874	1,974	1,874	1,974
Sandy Siltstone	1,974	2,024	1,974	2,024
Sandy Siltstone	2,024	2,074	2,024	2,074
Siltstone, Occ Sandstone	2,074	2,124	2,074	2,124
Sandy Siltstone, Occ Limestone	2,124	2,125	2,124	2,133
Big Lime	2,151	2,803	2,133	2,837
Fifty Foot Sandstone	2,803	2,970	2,811	3,012
Gordon	2,970	3,201	2,986	3,254
Fifth Sandstone	3,201	3,258	3,228	3,313
Bayard	3,258	4,045	3,287	4,146
Speechley	4,045	4,305	4,120	4,419
Bailtown	4,305	4,831	4,393	4,969
Bradford	4,831	5,323	4,943	5,486
Benson	5,323	5,592	5,460	5,770
Alexander	5,592	6,891	5,744	7,159
Sycamore	6,720	6,865	6,960	7,133
Middlesex	6,865	7,007	7,133	7,346
Burkett	7,007	7,037	7,346	7,405
Tully	7,037	7,113	7,405	7,610
Marcellus	7,113	NA	7,610	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.

03/13/2026

**Antero Resources**  
**Well No. Perna 1H**  
**As-Drilled**  
**Antero Resources Corporation**



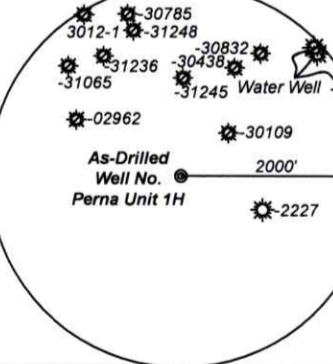
Top Hole Coordinates, As-drilled data, and information was provided by Antero Resources Corporation. Allegheny Surveys Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

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



Note: 3 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.



**Legend**

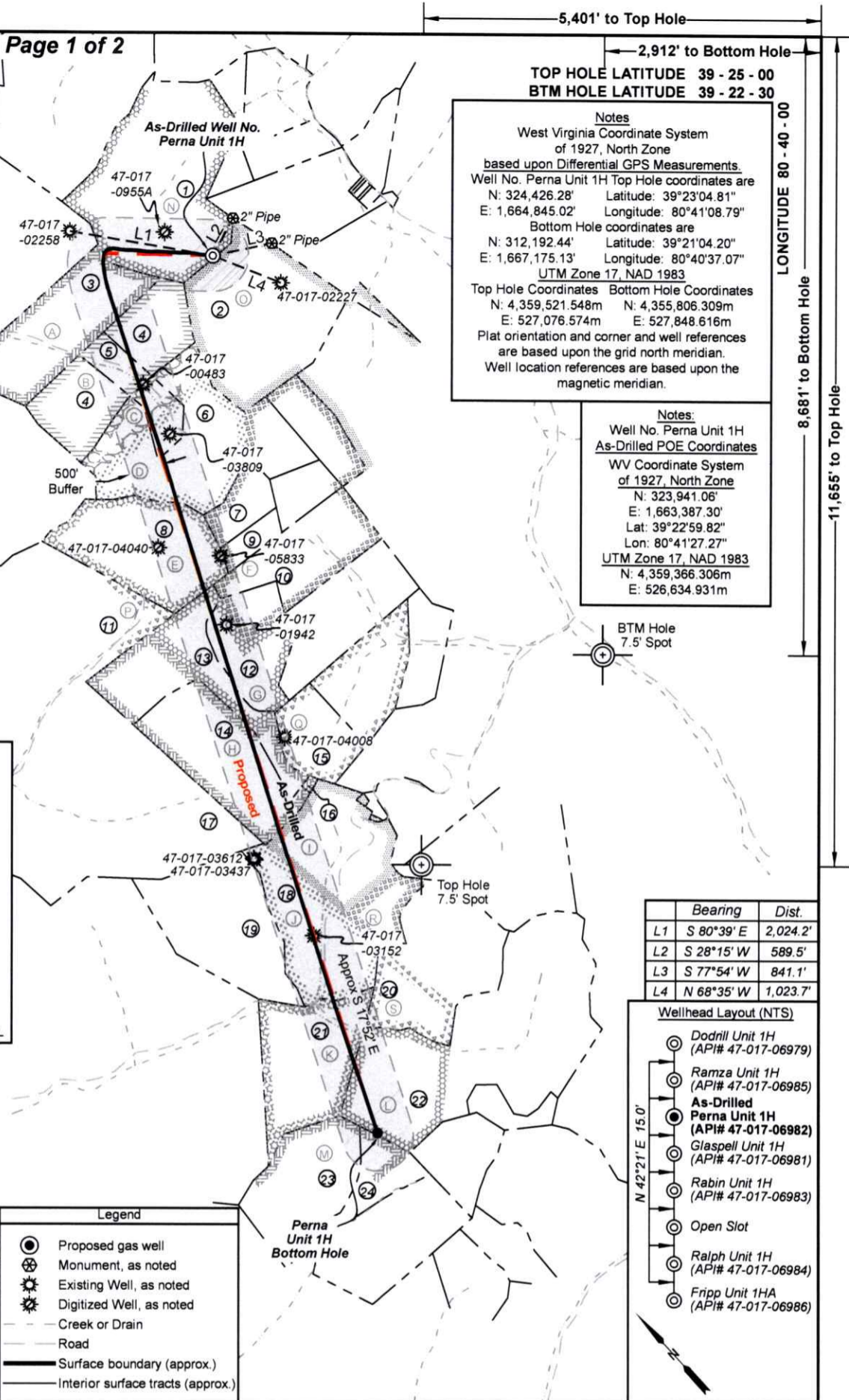
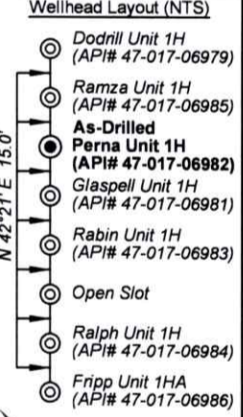
- Proposed gas well
- Monument, as noted
- Existing Well, as noted
- Digitized Well, as noted
- Creek or Drain
- Road
- Surface boundary (approx.)
- Interior surface tracts (approx.)

**Notes**  
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.  
 Well No. Perna Unit 1H Top Hole coordinates are  
 N: 324,426.28' Latitude: 39°23'04.81"  
 E: 1,664,845.02' Longitude: 80°41'08.79"  
 Bottom Hole coordinates are  
 N: 312,192.44' Latitude: 39°21'04.20"  
 E: 1,667,175.13' Longitude: 80°40'37.07"  
**UTM Zone 17, NAD 1983**  
 Top Hole Coordinates Bottom Hole Coordinates  
 N: 4,359,521.548m N: 4,355,806.309m  
 E: 527,076.574m E: 527,848.616m  
 Plat orientation and corner and well references are based upon the grid north meridian.  
 Well location references are based upon the magnetic meridian.

**Notes:**  
 Well No. Perna Unit 1H As-Drilled POE Coordinates  
**WV Coordinate System of 1927, North Zone**  
 N: 323,941.06'  
 E: 1,663,387.30'  
 Lat: 39°22'59.82"  
 Lon: 80°41'27.27"  
**UTM Zone 17, NAD 1983**  
 N: 4,359,366.306m  
 E: 526,634.931m

BTM Hole 7.5' Spot

Bearing	Dist.
L1 S 80°39' E	2,024.2'
L2 S 28°15' W	589.5'
L3 S 77°54' W	841.1'
L4 N 68°35' W	1,023.7'



FILE NO: 260-30-M-23  
 DRAWING NO: Perna 1H As-Drilled  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: Submeter  
 PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

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

DATE: October 17 20 25  
 OPERATOR'S WELL NO. Perna 1H  
**API WELL NO**  
47 - 017 - 06982  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: As-Built: 1,222' WATERSHED: McElroy Creek QUADRANGLE: Center Point  
 DISTRICT: McClellan Shawn A. COUNTY: Doddridge  
 SURFACE OWNER: Glaspell ACREAGE: 100  
 ROYALTY OWNER: Minda Allen LEASE NO: \_\_\_\_\_ ACREAGE: 100  
 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: 7,193' TVD  
19,983' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Conrad Baston  
 ADDRESS: 1615 Wynkoop Street ADDRESS: 535 White Oaks Blvd.  
Denver, CO 80202 Bridgeport, WV 26330

09/13/2026



Leases	
A	Thomas H. Downs
B	Robert O. Hopkins
C	Arthur G. Doak, et al
D	Arthur G. Doak, et ux
E	Kathleen E. Davis, et al
F	Shawn Gaspell
G	A.H. Low, et ux
H	CNX Gas Company, LLC
I	Cliff Wilson & Opal Wilson
J	Brenda V. Ney
K	Margaret J. & Martha A. McMillan
L	Mary A. Murphy Simons
M	Stanley Gain, et al
N	Minda Allen
O	Morris Mountaineer Oil & Gas LLC
P	Herbert Doak, et al
Q	CNX Gas Company, LLC
R	Brian A. Moreno & Diane P. Blanchette
S	Romona L. Clauson

ID	TM-Par	Owner	Bk/Pg	Acres
1	17-3.3	Shawn A. Gaspell	283/601	100.00
2	17-3.2	Shawn A. Gaspell	283/601	135.00
3	17-13	Shawn A. Gaspell	468/444	65.00
4	17-16	Faith L. Fry	238/167	36.84
5	17-18.1	Faith L. & Michael Fry	342/340	19.50
6	17-18	Faith L. Fry	238/167	80.14
7	17-19	Shawn A. Gaspell	372/215	13.82
8	6-6	Duaine Doak, et al	WB31/416	50.00
9	17-25	Shawn A. Gaspell	372/215	7.89
10	17-21	Patrick M. MacMillan	379/615	30.69
11	3-2	Ryan Thomas Nissel	372/405	54.63
12	22-1	Donald V. Sandstrom	266/650	34.63
13	6-11.1	Danny R. & Joyce A. Groover	301/149	44.94
14	6-11	Danny R. & Joyce A. Groover	301/149	47.30
15	22-3.1	George D. Payton & Donald V. Sandstrom	236/354	24.11
16	6-11.2	Danny R. & Joyce A. Dровер	301/149	0.64
17	6-10	Margot Beth Crowder	305/722	218.61
18	6-16	Brian A. Moreno & Diane P. Blanchette	389/382	104.80
19	6-23.1	Coastal Forest Resources Co.	260/135	52.00
20	6-17	Clyde M. Ford III	234/474	65.6
21	6-23	Werner F. Blei	272/340	52.50
22	7-1	Steven M. & Mary Ellen Perna	286/506	132.54
23	9-5.1	Josephine J. Donnahoe	WB31/4	48.75
24	9-6	Josephine J. Donnahoe	WB31/4	17.00

FILE NO: 260-30-M-23  
 DRAWING NO: Perna 1H As-Drilled  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY:  
Submeter  
 PROVEN SOURCE OF ELEVATION:  
WVDOT, Harrisville, WV

**STATE OF WEST VIRGINIA**  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
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Denver, CO 80202 Bridgeport, WV 26330

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	03/10/2025
Job End Date:	04/11/2025
State:	West Virginia
County:	Doddridge
API Number:	47-017-06982-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	PERNA UNIT 1H
Latitude:	39.384761
Longitude:	-80.685601
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7206
Total Base Water Volume (gal)*:	18628427
Total Base Non Water Volume:	0



Water Source	Percent
Produced Water	100.00%

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## 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
Excelerate LX-21	Halliburton	Friction Reducer					
FDP-S1470-23	Halliburton	Friction Reducer					
HAI-501	Halliburton	Acid Corrosion Inhibitor					
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
LCA-1	Halliburton	Solvent					
MC B-8123	MultiChem	Biocide					
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
Produced Water (Density 8.8)	Operator	Base Fluid					
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					

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Sand-Premium White-40/70	Halliburton	Proppant					
WG-36 GELLING AGENT	Halliburton	Gelling Agent					

Items above are Trade Names. Items below are the individual ingredients.

			Water	7732-18-5	100.00000	86.63124	None
			Crystalline silica, quartz	14808-60-7	100.00000	13.17871	None
			Water	7732-18-5	100.00000	0.16235	None
			Hydrochloric acid	7647-01-0	30.00000	0.03879	None
			Complex amine compound	Proprietary	60.00000	0.02611	None
			Hydrotreated distillate	Proprietary	100.00000	0.01351	None
			Guar gum	9000-30-0	100.00000	0.00398	None
			Ethanaminium, N,N,N-trimethyl-2-(1-oxo-2-propen-1-yl)oxy-, chloride (1:1), polymer with 2-propenamide	69418-26-4	60.00000	0.00267	None
			Ammonium chloride	12125-02-9	5.00000	0.00240	None
			Glutaraldehyde	111-30-8	30.00000	0.00240	None
			Fatty nitrogen derived amides	Proprietary	5.00000	0.00218	None
			Ethoxylated alcohol	Proprietary	5.00000	0.00218	None
			Hydrotreated light petroleum distillates	64742-47-8	30.00000	0.00134	None
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6	1.00000	0.00048	None
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	1.00000	0.00044	None
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.00000	0.00040	None
			Methanol	67-56-1	100.00000	0.00024	None
			Amides, tall-oil fatty, N,N-bis(hydroxyethyl)	68155-20-4	5.00000	0.00022	None
			Ethoxylated branched C13 alcohol	78330-21-9	5.00000	0.00022	None
			Ammonium persulfate	7727-54-0	100.00000	0.00012	None
			Citric acid	77-92-9	1.00000	0.00008	None
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00007	None

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			Modified thiourea polymer	Proprietary	30.00000	0.00007	None
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	1.00000	0.00004	None
			Oxylated phenolic resin	Proprietary	30.00000	0.00004	None
			Propargyl alcohol	107-19-7	5.00000	0.00001	None
			Hexadecene	629-73-2	5.00000	0.00001	None
			Ethoxylated alcohols	Proprietary	5.00000	0.00001	None
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000	None

\* 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%

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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