

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

API 47 - 095 - 02577 County Tyler District Ellsworth  
Quad Middlebourne 7.5' Pad Name Ferrell Pad Field/Pool Name -----  
Farm name Antero Resources Midstream LLC Well Number Hennessy 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 4369210.903m Easting 507025.937m  
Landing Point of Curve Northing 4369317.22m Easting 507000.03m  
Bottom Hole Northing 4371921.303m Easting 506134.565m

Elevation (ft) 757.5' ~~731.4'~~ 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 3/5/2019 ~~1/25/2019~~ Date drilling commenced 5/30/2019 Date drilling ceased 9/26/2019  
Date completion activities began 1/7/2020 Date completion activities ceased 2/5/2020  
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 194', 243' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1224', 1347' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 770' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by:

JEB  
10/15/2020

API 47- 095 - 02577 Farm name Antero Resources Midstream LLC Well number Hennessy 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"	110'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	399'	New	54#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2597'	New	36#, H-40	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	15549'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6240'		4.7#, N-80		
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	204 sx	15.6	1.18	244	0'	8 Hrs.
Surface	Class A	350 sx	15.6	1.19	402	0'	8 Hrs.
Coal							
Intermediate 1	Class A	905 sx	15.6	1.18	1047	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	798 sx (Lead) 2822 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.53 (Lead), 1.83 (Tail)	2819	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15565' MD, 6060' TVD (BHL), 6061' (Deepest Point Drilled) Loggers TD (ft) 15565' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5265'

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

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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

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PERFORATION RECORD

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

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)
<b>*PLEASE SEE ATTACHED EXHIBIT 2</b>								

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6026' (TOP)</u>	<u>TVD</u>	<u>6288' (TOP)</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 2800 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 11915 mcfpd Oil 326 bpd NGL --- bpd Water 1244 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

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

**\*PLEASE SEE ATTACHED EXHIBIT 3**


Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling LLC  
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

Logging Company Nine Energy Services  
Address 125 Museum Road City Washington State PA Zip 15301

Cementing Company C&J Energy Services  
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company Baker Hughes  
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223  
Signature [Signature] Title Permitting Agent Date 9/19/20

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

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API 47-095-02577 Farm Name Antero Midstream LLC Well Number Hennessy Unit 1H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	12/28/2019	15451	15407	60	Marcellus
2	12/29/2019	15368.42963	15202.5778	60	Marcellus
3	12/29/2019	15167.00741	15001.1556	60	Marcellus
4	12/30/2019	14965.58519	14799.7333	60	Marcellus
5	12/30/2019	14764.16296	14598.3111	60	Marcellus
6	12/30/2019	14562.74074	14396.8889	60	Marcellus
7	12/31/2019	14361.31852	14195.4667	60	Marcellus
8	12/31/2019	14159.8963	13994.0444	60	Marcellus
9	1/1/2020	13958.47407	13792.6222	60	Marcellus
10	1/1/2020	13757.05185	13591.2	60	Marcellus
11	1/1/2020	13555.62963	13389.7778	60	Marcellus
12	1/1/2020	13354.20741	13188.3556	60	Marcellus
13	1/2/2020	13152.78519	12986.9333	60	Marcellus
14	1/2/2020	12951.36296	12785.5111	60	Marcellus
15	1/2/2020	12749.94074	12584.0889	60	Marcellus
16	1/2/2020	12548.51852	12382.6667	60	Marcellus
17	1/2/2020	12347.0963	12181.2444	60	Marcellus
18	1/3/2020	12145.67407	11979.8222	60	Marcellus
19	1/3/2020	11944.25185	11778.4	60	Marcellus
20	1/3/2020	11742.82963	11576.9778	60	Marcellus
21	1/4/2020	11541.40741	11375.5556	60	Marcellus
22	1/4/2020	11339.98519	11174.1333	60	Marcellus
23	1/4/2020	11138.56296	10972.7111	60	Marcellus
24	1/4/2020	10937.14074	10771.2889	60	Marcellus
25	1/5/2020	10735.71852	10569.8667	60	Marcellus
26	1/5/2020	10534.2963	10368.4444	60	Marcellus
27	1/5/2020	10332.87407	10167.0222	60	Marcellus
28	1/5/2020	10131.45185	9965.6	60	Marcellus
29	1/6/2020	9930.02963	9764.17778	60	Marcellus
30	1/6/2020	9728.607407	9562.75556	60	Marcellus
31	1/6/2020	9527.185185	9361.33333	60	Marcellus
32	1/7/2020	9325.762963	9159.91111	60	Marcellus
33	1/7/2020	9124.340741	8958.48889	60	Marcellus
34	1/7/2020	8922.918519	8757.06667	60	Marcellus
35	1/8/2020	8721.496296	8555.64444	60	Marcellus
36	1/8/2020	8520.074074	8354.22222	60	Marcellus
37	1/8/2020	8318.651852	8152.8	60	Marcellus
38	1/9/2020	8117.22963	7951.37778	60	Marcellus
39	1/9/2020	7915.807407	7749.95556	60	Marcellus
40	1/9/2020	7714.385185	7548.53333	60	Marcellus
41	1/10/2020	7512.962963	7347.11111	60	Marcellus
42	1/10/2020	7311.540741	7145.68889	60	Marcellus
43	1/10/2020	7110.118519	6944.26667	60	Marcellus
44	1/10/2020	6908.696296	6742.84444	60	Marcellus
45	1/10/2020	6707.274074	6541.42222	60	Marcellus
46	1/11/2020	6505.851852	6340	60	Marcellus

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**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	12/28/2019	72.53172	6881.145	5281	3498	181780	5053.656	N/A
2	12/29/2019	82.56524	7840.274	4040	3849	411060	7382.856	N/A
3	12/29/2019	78.99496	7653.542	5185	3571	410860	7113.63	N/A
4	12/30/2019	81.62141	7777.421	5645	3510	409660	7358.55	N/A
5	12/30/2019	81.83318	7809.058	5064	3738	413200	7212.46	N/A
6	12/30/2019	82.94045	7924.728	5681	3756	407180	7405.22	N/A
7	12/31/2019	81.93976	7875.67	5444	3876	405880	7198.2	N/A
8	12/31/2019	84.3687	7957.35	6753	3513	403940	7300.9	N/A
9	1/1/2020	85.12305	7997.158	5398	3359	413640	7251.97	N/A
10	1/1/2020	83.74306	7884.226	5953	3493	404820	7123.97	N/A
11	1/1/2020	84.12094	7698.884	5322	3479	407680	7253.91	N/A
12	1/1/2020	83.15001	7854.167	5297	3666	403220	6984.77	N/A
13	1/2/2020	83.18419	7927.448	5503	3542	405320	7031.72	N/A
14	1/2/2020	85.00209	7998.125	4948	3580	403740	7119.43	N/A
15	1/2/2020	85.79185	8133.122	5369	3475	407920	7026.87	N/A
16	1/2/2020	85.21021	7879.241	5465	3555	404000	6965.27	N/A
17	1/2/2020	86.17218	8077.504	5002	3613	408880	6759.78	N/A
18	1/3/2020	85.08144	7940.217	4947	3501	409400.1122	7546.28	N/A
19	1/3/2020	83.9865	7722.46	4182	3616	413179.5651	7476.75	N/A
20	1/3/2020	78.50933	7896.657	5637	3991	415060	7358.33	N/A
21	1/4/2020	83.24789	7652.031	5004	4148	405860	8807.75	N/A
22	1/4/2020	84.22692	7966.473	5142	3531	406000	6876.31	N/A
23	1/4/2020	83.59736	7796.881	5329	3492	406220	6861.79	N/A
24	1/4/2020	85.95782	8048.549	5179	3597	407820	6817.36	N/A
25	1/5/2020	85.1038	7866.321	5239	3657	401020	6827.62	N/A
26	1/5/2020	84.05449	7672.711	6026	3554	406480	6924.19	N/A
27	1/5/2020	83.1646	7554.595	5870	3459	405500	6916.42	N/A
28	1/5/2020	82.41266	7429.629	5551	3598	407100	6904.57	N/A
29	1/6/2020	83.53912	7445.766	5398	3568	404940	6852.14	N/A
30	1/6/2020	85.19561	7437.694	5512	3678	404320	6890.1	N/A
31	1/6/2020	85.96074	7198.225	5575	3550	410440	6919.92	N/A
32	1/7/2020	83.30194	7079.265	6130	3466	415680	6900.65	N/A
33	1/7/2020	84.00987	7229.918	6025	3475	411160	6887.04	N/A
34	1/7/2020	83.26818	7120.698	5604	3585	412780	6906.37	N/A
35	1/8/2020	84.31971	6855.609	5359	3403	409920	6932.7	N/A
36	1/8/2020	84.34586	7224.645	5968	3472	406460	6803.6	N/A
37	1/8/2020	85.95082	7130.286	5881	3488	412240	6865.42	N/A
38	1/9/2020	85.38016	6936.1	3963	3554	412480	6858.39	N/A
39	1/9/2020	83.69972	6985.271	5557	3415	410840	6847.64	N/A
40	1/9/2020	85.34072	7002.26	5417	3483	404980	6806.37	N/A
41	1/10/2020	85.43295	6998.142	5871	3483	411680	6803.24	N/A
42	1/10/2020	84.98723	7007.124	6218	3315	406500	6806.58	N/A
43	1/10/2020	85.59342	6901.017	6273	3398	407000	6798.65	N/A
44	1/10/2020	86.35293	6875.053	5967	3536	405420	6774.24	N/A
45	1/10/2020	86.42518	6837.554	5671	3507	409460	6737.36	N/A
46	1/11/2020	84.061	6908.482	5721	3296	408580	6821.88	N/A
	AVG=	<b>83.4</b>	<b>7,675</b>	<b>5,417</b>	<b>3,595</b>	<b>14,462,120</b>	<b>253,953</b>	TOTAL

**EXHIBIT 3**

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
Silty Sandstone	75	175	75	175
Siltstone	175	275	175	275
Shaly Siltstone	275	335	275	335
Silty Shale	335	555	335	555
Silty Sandstone	555	575	555	575
Shale	575	955	575	955
Shaly Sandstone	955	1,035	955	1,035
Sandstone	1,035	1,215	1,035	1,215
Sandy Shale	1,215	1,255	1,215	1,255
Shaly Siltstone	1,255	1,315	1,255	1,315
Sandstone	1,315	1,435	1,315	1,435
Shaly Sandstone	1,435	1,515	1,435	1,515
Sandy Shale	1,515	1,536	1,515	N/A
Big Lime	1,551	2,124	1,538	2,125
Fifty Foot Sandstone	2,124	2,352	2,110	2,354
Gordon	2,352	2,652	2,339	2,654
Fifth Sandstone	2,652	2,755	2,639	2,757
Bayard	2,755	3,600	2,742	3,608
Speechley	3,600	3,730	3,593	3,736
Balltown	3,730	4,222	3,721	4,235
Bradford	4,222	4,516	4,220	4,532
Benson	4,516	4,892	4,517	4,913
Alexander	4,892	5,926	4,898	6,040
Sycamore	5,799	5,896	5,882	6,010
Middlesex	5,896	5,984	6,025	6,176
Burkett	5,984	6,007	6,191	6,230
Tully	6,007	6,026	6,245	6,288
Marcellus	6,026	NA	6,288	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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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/28/2019
Job End Date:	1/11/2020
State:	West Virginia
County:	Tyler
API Number:	47-095-02577-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Hennessy 1H
Latitude:	39.47237780
Longitude:	-80.91848330
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,094
Total Base Water Volume (gal):	14,075,371
Total Base Non Water Volume:	0

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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
Water	Supplied by Operator	Base Fluid	Water	7732-18-5	100.00000	86.07578	
Sand (Proppant)	CWS	Propping Agent		Listed Below			



Calbreak 5501	CWS	Breaker								
							Listed Below			
CI-9100G	CWS	Corrosion Inhibitor								
							Listed Below			
CalGel 4000	CWS	Gel Slurry								
							Listed Below			
Hydrochloric Acid	CWS	Clean Perforations								
							Listed Below			
SaniFrac 8123	CWS	Microbiocide								
							Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List								
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				13.59554	
			Illite	12173-60-3	1.00000				0.13595	
			Hydrochloric acid	7647-01-0	37.00000				0.11429	
			Biotite	1302-27-8	0.10000				0.01359	
			Apatite	64476-38-6	0.10000				0.01359	
			Goethite	1310-14-1	0.10000				0.01359	
			Ilmenite	98072-94-7	0.10000				0.01359	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000				0.01024	

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					Guar gum	9000-30-0	60.00000	0.01024
					Glutaraldehyde	111-30-8	14.00000	0.00119
					Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00085
					Ammonium Persulfate	7727-54-0	100.00000	0.00030
					Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00026
					Alkyl dimethyl benzyl ammonium chloride	68424-85-1	3.00000	0.00025
					Didecyl dimethyl ammonium chloride	7173-51-5	3.00000	0.00025
					Ethanol	64-17-5	3.00000	0.00025
					Ethylene Glycol	107-21-1	40.00000	0.00006
					Vinylidene chloride-methyl acrylate copolymer	25038-72-6	20.00000	0.00006
					Diethylene glycol, monomethyl ether	34590-94-8	20.00000	0.00003
					Ethoxylated Alcohols	68131-39-5	10.00000	0.00002
					Cinnamaldehyde	104-55-2	10.00000	0.00002
					Formic acid	64-18-6	10.00000	0.00002
					Tar bases, quinolone derivs, benzyl chloride- quaternized	72480-70-7	10.00000	0.00002
					Isopropyl alcohol	67-63-0	5.00000	0.00001

\* 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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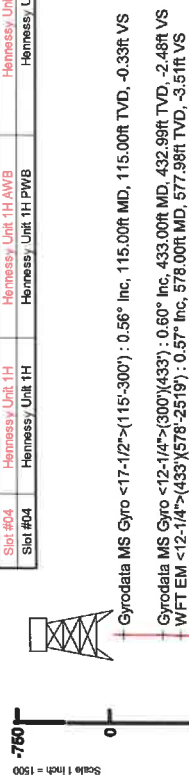
# ANTERO RESOURCES CORPORATION

Location: Tyler County, WV  
 Field: Tyler  
 Facility: Ferrill North Pad  
 Slot: Slot #04  
 Well: Hennessy Unit 1H  
 Wellbore: Hennessy Unit 1H PWB

Plot reference wellpath is Hennessy Unit 1H PWP Rev-A.0  
 True vertical depths are referenced to H&P 519 (RKB)  
 Measured depths are referenced to H&P 519 (RKB)  
 H&P 519 (RKB) to Mean Sea Level: 787 feet  
 Mean Sea Level to Ground level (At Slot Slot #04): -757 feet  
 Coordinates are in feet referenced to Slot

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Ferrill North Pad	1659420.630	1433923.300	80°55'06.540"W
Slot	Local E (ft)	Grid North (US ft)	Longitude
Slot #04	45.18	1659420.614	80°55'06.540"W
H&P 519 (RKB) to Ground level (At Slot Slot #04)	30ft		
Mean Sea Level to Ground level (At Slot Slot #04)	-757ft		
H&P 519 (RKB) to Mean Sea Level	787ft		

Well Data			
Slot	Well	Wellbore	Wellbath
Slot #04	Hennessy Unit 1H	Hennessy Unit 1H AWP	Hennessy Unit 1H AWP Proj: 15565
Slot #04	Hennessy Unit 1H	Hennessy Unit 1H PWB	Hennessy Unit 1H PWP Rev-A.0

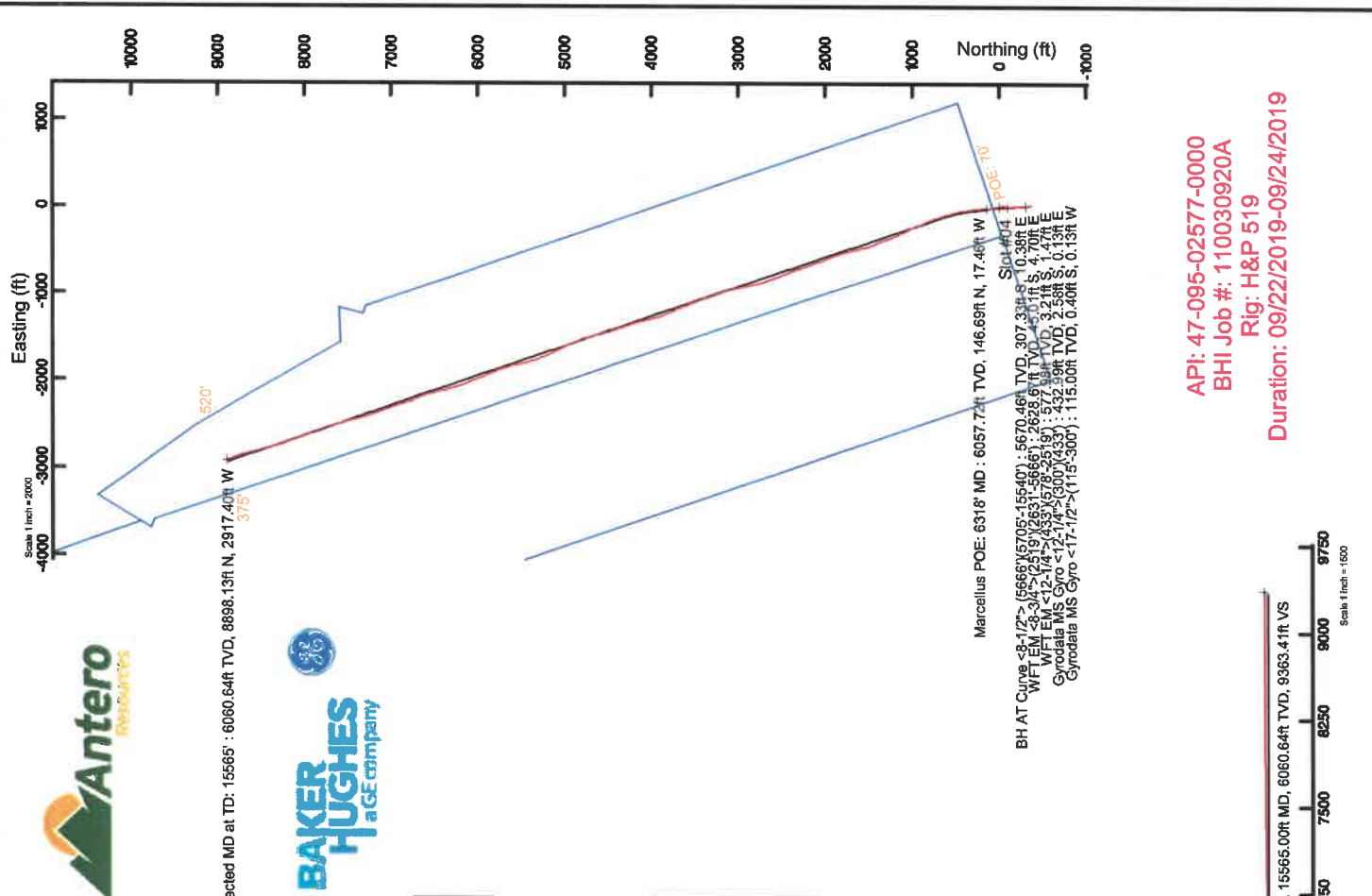


Well Profile Data						
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	VS (ft)
Tie On	5666.00	22.330	354.200	5634.91	-323.27	12.06
Proj. To Bottom	5738.00	26.330	354.200	5698.96	-292.65	8.38
End of 3D Arc	5978.00	36.688	359.698	5916.98	-215.33	6.27
POE	6296.83	70.670	352.000	6056.00	120.05	-19.98
Landing PL	6524.25	90.000	352.000	6094.00	341.00	-50.94
On Azimuth	6887.24	90.000	341.110	6094.00	693.52	-135.21
BHL	15529.33	90.000	341.110	6094.00	8870.17	-2933.10
						0.00
						9342.04

WFT EM <8-1/2> (5666)(5705-15540) : 26.23° Inc, 5705.00ft MD, 5670.46ft TVD, -294.14ft VS  
 Gyrodala MS Gyro <12-1/4> (433)(578-2519) : 0.57° Inc, 578.00ft MD, 577.98ft TVD, -3.51ft VS  
 Gyrodala MS Gyro <17-1/2> (115-300) : 0.56° Inc, 115.00ft MD, 115.00ft TVD, -0.38ft VS

RECEIVED  
 Office of Oil and Gas  
 SEP 24 2020  
 WV Department of Environmental Protection

BH AT Curve <8-1/2> (5666)(5705-15540) : 26.23° Inc, 5705.00ft MD, 5670.46ft TVD, -294.14ft VS  
 Marcellus POE: 6318° MD : 71.96° Inc, 6318.00ft MD, 6057.72ft TVD, 144.45ft VS  
 Projected MD at TD: 15565° : 90.00° Inc, 15565.00ft MD, 6060.64ft TVD, 9363.41ft VS  
 Vertical Section (ft)  
 Azimuth 341.11° with reference 0.00 N, 0.00 E



API: 47-095-02577-0000  
 BHI Job #: 110030920A  
 Rig: H&P 519  
 Duration: 09/22/2019-09/24/2019



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

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

3,448' to Bottom Hole

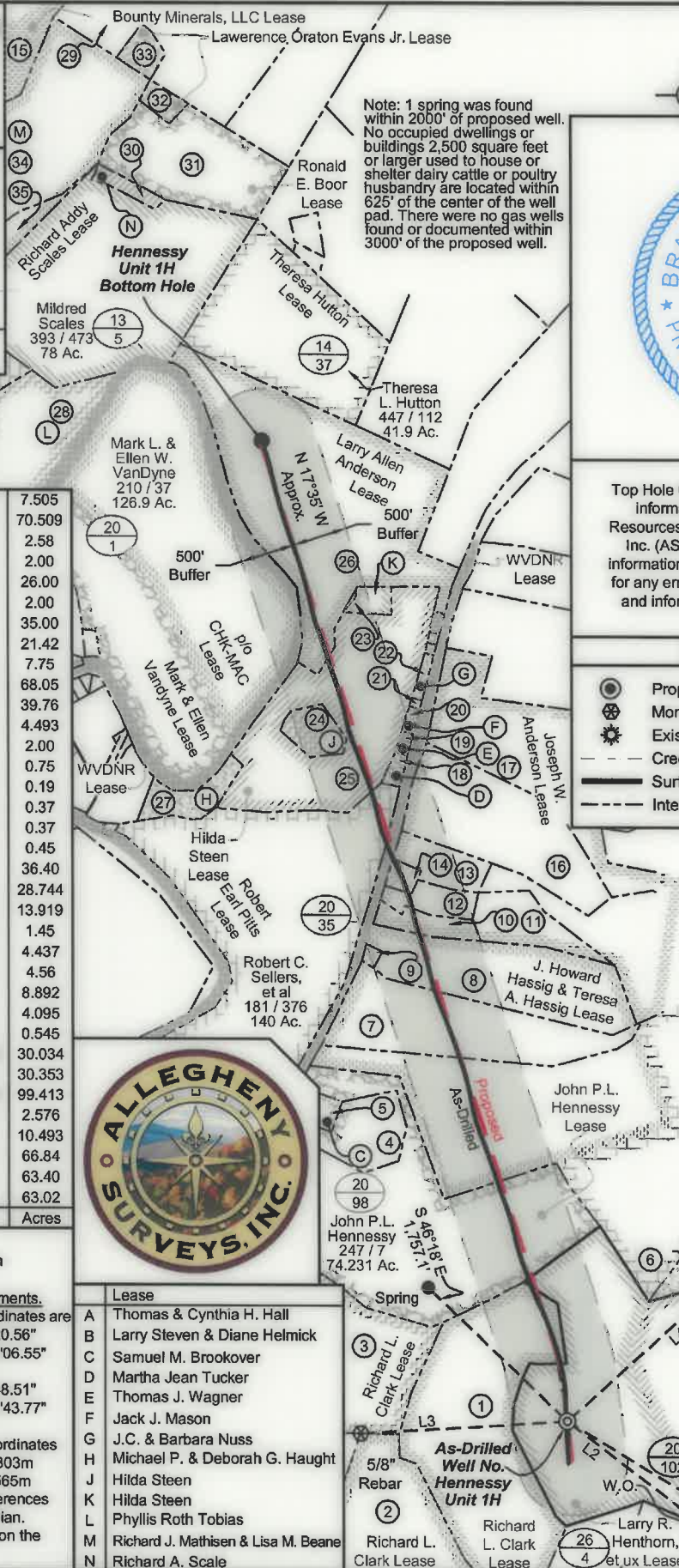
672' to Top Hole  
LATITUDE 39 - 30 - 00

Bottom Hole  
7.5' Spot

LONGITUDE 80 - 55 - 00

10,051' to Top Hole

1,108' to Bottom Hole



Note: 1 spring was 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. There were no gas wells found or documented within 3000' of the proposed well.



SEAL

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.

**Legend**

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

Top Hole  
7.5'  
Spot

35	13/3.4	Carpenter	415/733	7.505
34	13/3.3	Mathisen	349/563	70.509
33	14/12	Evans	491/331	2.58
32	14/28	Evans	491/331	2.00
31	14/29	Boor Family Trust	478/280	26.00
30	13/5.1	Scales	342/553	2.00
29	13/2	Evans	113/6	35.00
28	13/6	Ball	387/671	21.42
27	20/34	Haught	344/268	7.75
26	20/2	Anderson	282/506	68.05
25	20/12	Steen	264/127	39.76
24	20/12.4	Keller	282/435	4.493
23	20/12.5	Haught	343/731	2.00
22	20/12.1	Nuss	411/206	0.75
21	20/12.3	Nuss	366/467	0.19
20	20/15	Mason	388/834	0.37
19	20/36.1	Wagner	329/366	0.37
18	20/36	Tucker	8/210	0.45
17	20/39	Rymer	219/287	36.40
16	20/38	Rymer	219/287	28.744
15	13/3.1	Owens	350/388	13.919
14	20/37.1	Moore	360/656	1.45
13	20/37.4	Thacker, et al	395/843	4.437
12	20/37.2	Wolf	362/386	4.56
11	20/37	Thacker, et al	443/643	8.892
10	20/37.3	Wolf	384/321	4.095
9	20/83.2	Helmick	311/390	0.545
8	20/83.6	Hall	WB40/335	30.034
7	20/83.7	Helmick	400/592	30.353
6	20/83	Helmick	WB40/335	99.413
5	20/98.1	Brookover	353/386	2.576
4	20/98.2	Price	417/303	10.493
3	20/97	Moore	314/699	66.84
2	26/2	Moore	314/701	63.40
1	26/3	Moore, et al	448/216	63.02
ID	TM/Par	Owner	Bk/Pg	Acres



**Wellhead Layout (NTS)**

- Remo Unit 1H (47-095-02578)
- Remo Unit 2H (47-095-02579)
- As-Drilled Hennessy Unit 1H (47-095-02577)
- Hennessy Unit 2H (47-095-2575)
- Guild Unit 1H (47-095-2573)
- Guild Unit 2H (47-095-2574)

Bearing	Dist.
L1 N 58°36' W	2,652.4'
L2 N 52°19' W	1,571.5'
L3 N 86°29' E	1,892.2'
L4 S 47°45' W	2,924.1'

**Notes:**  
West Virginia Coordinate System of 1927, North Zone  
based upon Differential GPS Measurements.  
Well No. Hennessy Unit 1H Top Hole coordinates are  
N: 357,321.60' Latitude: 39°28'20.56"  
E: 1,599,579.60' Longitude: 80°55'06.55"  
Bottom Hole coordinates are  
N: 366,264.68' Latitude: 39°29'48.51"  
E: 1,596,803.05' Longitude: 80°55'43.77"  
UTM Zone 17, NAD 1983  
Top Hole Coordinates Bottom Hole Coordinates  
N: 4,369,210.903m N: 4,371,921.303m  
E: 507,025.937m E: 506,134.565m  
Plat orientation and corner and well references are based upon the grid north meridian.  
Well location references are based upon the magnetic meridian.

Lease
A Thomas & Cynthia H. Hall
B Larry Steven & Diane Helmick
C Samuel M. Brookover
D Martha Jean Tucker
E Thomas J. Wagner
F Jack J. Mason
G J.C. & Barbara Nuss
H Michael P. & Deborah G. Haught
J Hilda Steen
K Hilda Steen
L Phyllis Roth Tobias
M Richard J. Mathisen & Lisa M. Beane
N Richard A. Scale

FILE NO: 16-54-E-17  
DRAWING NO: Hennessy 1H As-Drilled  
SCALE: 1" = 1500'  
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: May 8 20 20  
OPERATOR'S WELL NO. Hennessy Unit 1H  
API WELL NO  
47 - 095 - 02577  
STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 757.5' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Paden City-BHL  
DISTRICT: Ellsworth COUNTY: Tyler 68.05;  
SURFACE OWNER: Antero Midstream, LLC Larry Allen Anderson; Robert Earl Pitts; Larry R. Henthorn, et ux; John P.L. Hennessy; J. Howard Hassig & Teresa A. Hassig; Joseph W. Anderson; 15.9;39.757;  
ROYALTY OWNER: West Virginia Division of Natural Resources; Richard L. Clark; Hilda Steen LEASE NO: 61.71875; 140;  
ACREAGE: 203.59 84.724; 63.02;  
ACREAGE: 109.14; 99.413  
PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled 6,060' TVD  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 15,565' MD

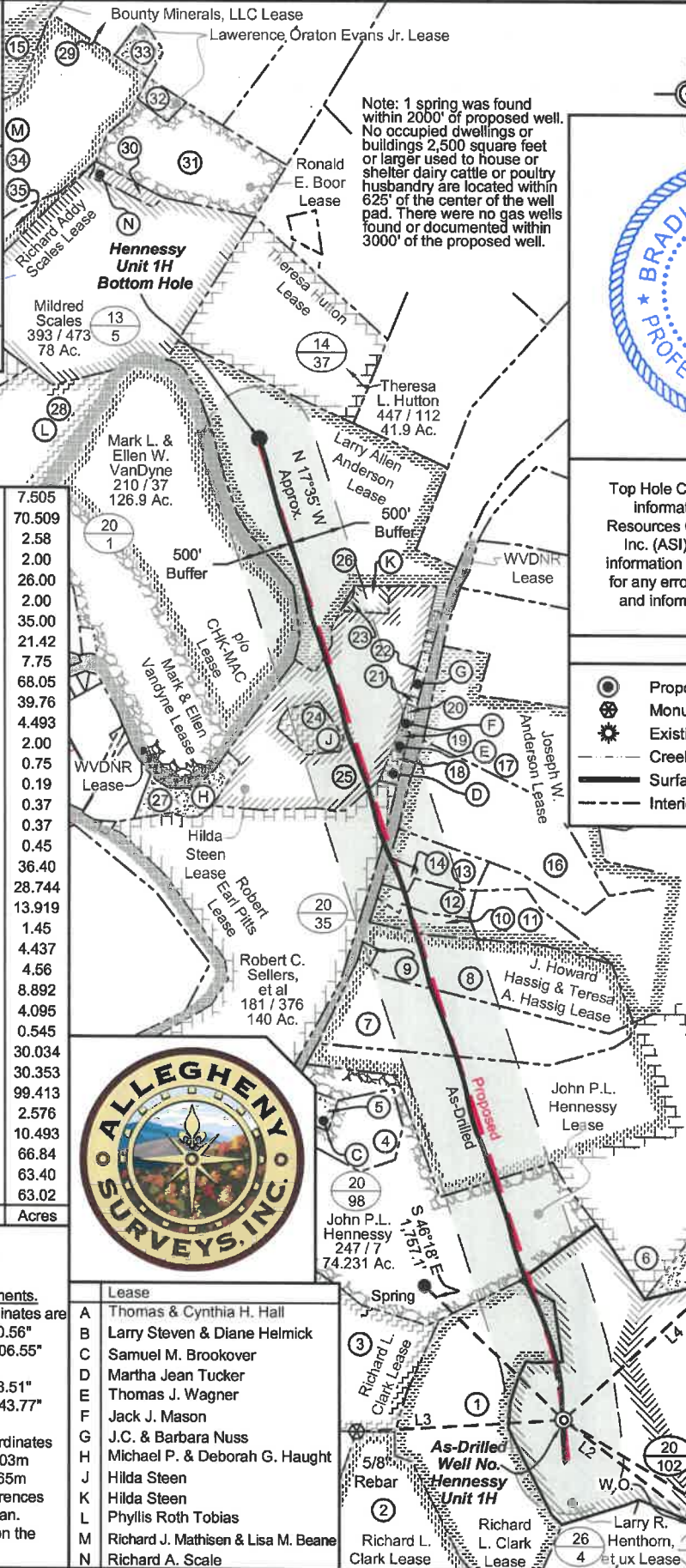
WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System  
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road  
Denver, CO 80202 Charleston, WV 25313



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

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



3,448' to Bottom Hole

672' to Top Hole  
LATITUDE 39 - 30 - 00

Bottom Hole  
7.5' Spot

LONGITUDE 80 - 55 - 00

1,108' to Bottom Hole

10,051' to Top Hole

BRADLEY D. MILLER  
LICENSED  
No. 2167  
STATE OF WEST VIRGINIA  
PROFESSIONAL SURVEYOR

SEAL

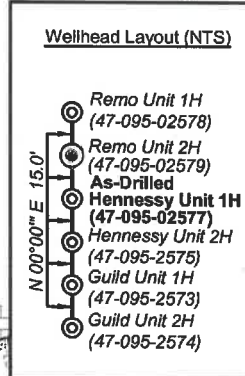
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PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

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