

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

API 47 - 095 - 02782 County Tyler District Ellsworth, Union, Lincoln  
Quad Top Hole: Middleboore - Btm Hole: Paden City Pad Name Eldon Field/Pool Name -----  
Farm name Eldon J. & Ruth A. Helman Well Number Clutter Unit 2H  
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 4371564m Easting 503792m  
Landing Point of Curve Northing 4371473.754m Easting 503463.249m  
Bottom Hole Northing 4376546m Easting 501718m

Elevation (ft) 880' 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 3/21/2022 Date drilling commenced 6/1/2022 Date drilling ceased 8/15/2022  
Date completion activities began 10/1/2022 Date completion activities ceased 12/8/2022  
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 156' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1676' 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

**APPROVED**

Reviewed by:

09/15/2023

*John M. ...*  
*5/24/23*

API 47- 095 - 02782 Farm name Eldon J. & Ruth A. Helman Well number Clutter 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	26"	20"	130'	New	78.67#, X-60	N/A	Y
Surface	17-1/2"	13-3/8"	351'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2825'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	24066'	New	23#, P-110cy	N/A	Y
Tubing		2-3/8"	6360'		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	141 sx	15.6	1.18	166	0'	8 Hrs.
Surface	Class A	325 sx	15.8	1.17	380	0'	8 Hrs.
Coal							
Intermediate 1	Class C	985 sx	15.8	1.16	183	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	4010 sx (Tail)	13.5 (Lead) 15.2 (Tail)	1.25 (Tail)	534	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 24066' MD, 5972' TVD (BHL), 6124' (Deepest Point Drilled) Loggers TD (ft) 24066' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5480'

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

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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>								

Please insert additional pages as applicable.

API 47-095-02782 Farm name Eldon J. & Ruth A. Helman Well number Clutter Unit 2H

PRODUCING FORMATION(S)	DEPTHS		
<u>Marcellus</u>	<u>6051' (TOP)</u>	<u>TVD</u>	<u>6424' (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 1588 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 14310 mcfpd Oil 434 bpd NGL --- bpd Water 1889 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 Halliburton Energy Services  
Address 3000 W. Sam Houston Pkwy City Houston State TX Zip 76114

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

Please insert additional pages as applicable.

Completed by Carly Marvel Telephone 303-357-7373  
Signature Carly Marvel Title Permitting Agent Date 2/24/2023

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

09/15/2023 

**Antero Resources**  
**Well No. Clutter 2H**  
**As-Drilled**  
 Antero Resources Corporation



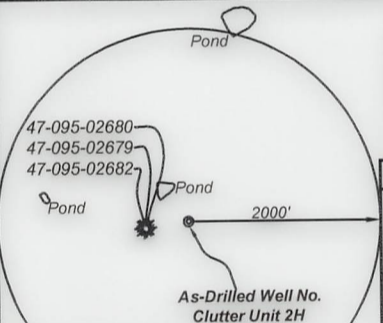
Top Hole Coordinates, As-drilled data, and information was provided by Antero Resources Corporation. Allegany Surveys Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

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, P.S. 2167



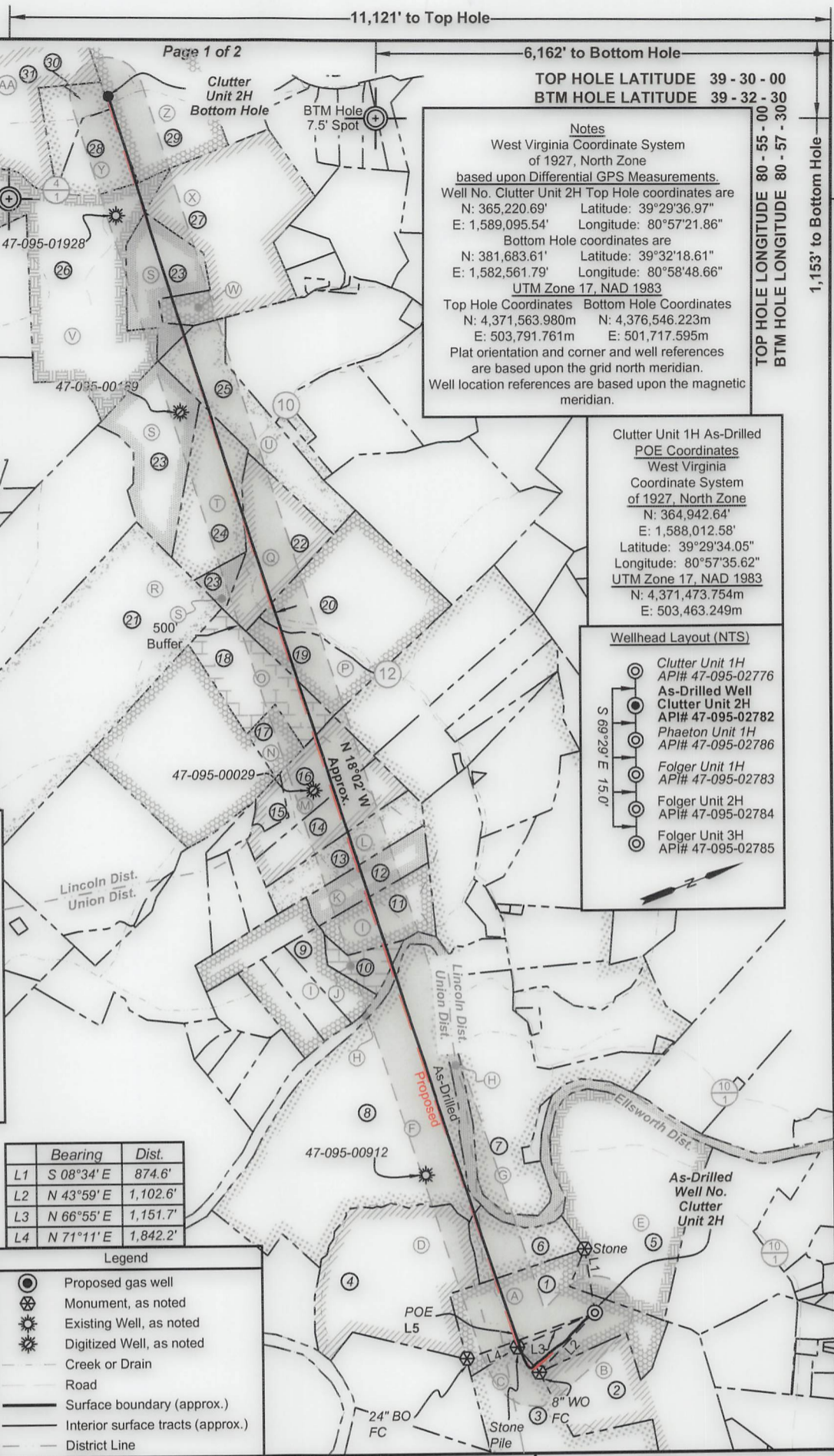
SEAL



Note: 0 water well, 0 spring and 3 ponds 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.

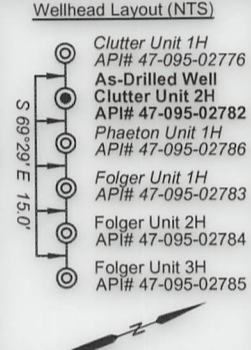
	Bearing	Dist.
L1	S 08°34' E	874.6'
L2	N 43°59' E	1,102.6'
L3	N 66°55' E	1,151.7'
L4	N 71°11' E	1,842.2'

- 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.)
  - District Line



**Notes**  
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.  
 Well No. Clutter Unit 2H Top Hole coordinates are  
 N: 365,220.69' Latitude: 39°29'36.97"  
 E: 1,589,095.54' Longitude: 80°57'21.86"  
 Bottom Hole coordinates are  
 N: 381,683.61' Latitude: 39°32'18.61"  
 E: 1,582,561.79' Longitude: 80°58'48.66"  
 UTM Zone 17, NAD 1983  
 Top Hole Coordinates Bottom Hole Coordinates  
 N: 4,371,563.980m N: 4,376,546.223m  
 E: 503,791.761m E: 501,717.595m  
 Plat orientation and corner and well references are based upon the grid north meridian.  
 Well location references are based upon the magnetic meridian.

**Clutter Unit 1H As-Drilled POE Coordinates**  
 West Virginia Coordinate System of 1927, North Zone  
 N: 364,942.64'  
 E: 1,588,012.58'  
 Latitude: 39°29'34.05"  
 Longitude: 80°57'35.62"  
 UTM Zone 17, NAD 1983  
 N: 4,371,473.754m  
 E: 503,463.249m



FILE NO: 268-54-E-21  
 DRAWING NO: Clutter Unit 2H 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: February 22 2023  
 OPERATOR'S WELL NO. Clutter Unit 2H  
 API WELL NO  
 47 - 095 - 02782  
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 880' WATERSHED: Middle Island Creek QUADRANGLE: Btm Hole: Paden City  
 Outlet: Middle Island Creek Top Hole: Middlebourne  
 DISTRICT: Union, Lincoln COUNTY: Boone  
 SURFACE OWNER: Ruth A. Helman William P. Ingram (2); James Arthur Shreves, et ux; Heritage Resources Marcellus Minerals, LLC  
 SURFACE OWNER: Eldon J. & Karen Moore Hwilka; Keith V. Frum, et ux; Erik D. Grimm; James H. Williamson; COUNTY: Boone  
 SURFACE OWNER: Richard Keith McCollum; Charles M., Jr. & Crystal R. Young; Flora Patterson Woodburn; ACREAGE: 61.83  
 SURFACE OWNER: Jeffrey M. Mennillo, et ux; David S. Clough; William J. Goodfellow, et ux (2); Alan B. Clough, et ux ACREAGE: 128.55; 31.25; 86.607  
 ROYALTY OWNER: Eldon J. & Ruth A. Helman; Lora Keller Thomas; WVDNR; Norma R. Spencer; LEASE NO: ACREAGE: 128.55; 31.25; 86.607

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: 24,066' MD  
 5,972' TVD

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



ID	TM/Par	Owner	Bk/Pg	Acres
1	19-1	Eldon J. & Ruth A. Helman	383/761	61.83
2	19-42	Carol J. Cox	334/298	142.00
3	10-10	Lora K. Thomas	201/359	307.05
4	6-2	Eldon J. & Ruth A. Helman	383/761	83.13
5	13-10	Eldon J. & Ruth A. Helman	383/761	96.82
6	6-1.1	Eldon J. & Ruth A. Helman	383/761	21.00
7	15-18	B.F. Kile	174/412	70.00
8	6-1	Eldon J. & Ruth A. Helman	383/761	169.00
9	6-6.11	David S. Clough	351/752	12.40
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14	6-6.5	Crystal R. & Charles J. Young, Jr.	345/211	25.65
15	6-6	Crystal R. & Charles J. Young, Jr.	368/773	5.06
16	6-6.4	Crystal R. & Charles J. Young, Jr.	368/773	25.35
17	15-3	Dena Grimes	W35/150	11.00
18	15-1	S.P. & Otto Woodburn Estate	97/423	33.74
19	12-55	John A. & Matthew J. May	432/101	25.00
20	12-55	Nathaniel V. & Tamela Frum	428/604	75.00
21	14-1	Edward E. & Connie Howell	361/829	158.74
22	12-49	Estella J. & William J. Goodfellow, Jr.	286/20	38.65
23	12-21	Keith V. & Barbara L. Frum	280 / 358	77.30
24	12-46	Keith V. & Barbara L. Frum	280/358	40.89
25	12-43	Estella J. & William J. Goodfellow, Jr.	178/489	43.18
26	11-10	James Arthur & Dorothy J. Shreves	183/420	128.55
27	12-22	William & Joanne Ingram	140/502	84.30
28	11-9	Christian & Anna Forrester Estate	85/575	18.25
29	7-40	Brett Grimm, et al	342/538	86.60
30	11-8	Christian & Anna Forrester Estate	98/118	13.00
31	11-7	Robert L. Sherman	369/843	99.56

Leases	
A	Eldon J. & Ruth A. Helman
B	Carol J. Cox
C	Lora Keller Thomas
D	Gary C. & Maryjane Richards
E	Ruth H. Wells
F	Norma R. Spencer
G	Mary Ann Devine
H	WVDNR
I	David S. Clough
J	Jeffrey M. Mennillo, et ux
K	Alan B. Clough, et ux
L	Richard Keith McCollum
M	Charles M. Jr. & Crystal R. Young
N	Dena Raye Grimes
O	Flora Patterson Woodburn
P	Karen Moore Hwilka
Q	William J. Goodfellow, et ux
R	Margaret Conaway-Torok
S	William P. Ingram
T	Keith V. Frum, et ux
U	William J. Goodfellow, et ux
V	James Arthur Shreves, et ux
W	Heritage Resources Marcellus Minerals, LLC
X	William P. Ingram
Y	James H. Williamson
Z	Erik D. Grimm
AA	Robert L. Sherman

FILE NO: 268-54-E-21  
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 LEASE NO: ACREAGE: 61.83 7.0; 25.05; 56.06; 34.3; 9.9; 33.74; 100; 40.89; 190; 48.55; 84.3; 77.3; 128.55; 31.25; 86.607

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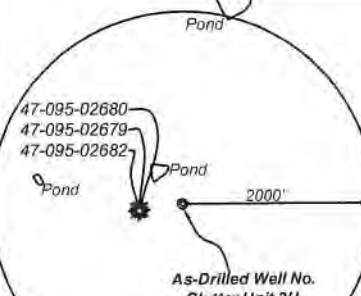
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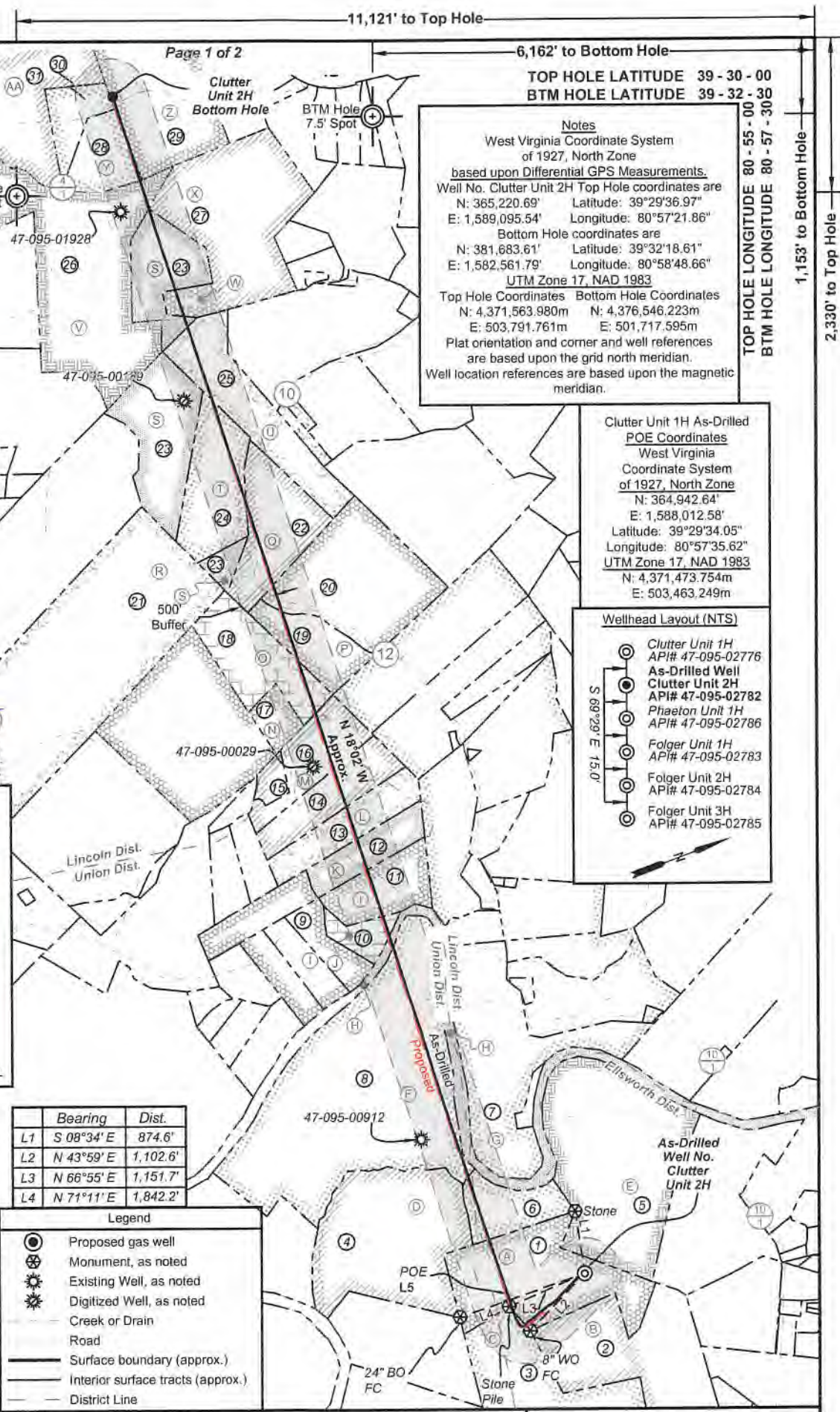
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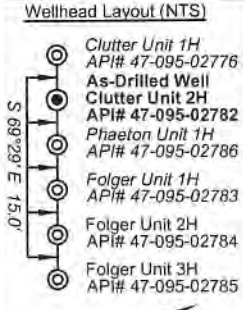
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G	Mary Ann Devine
H	WVDNR
I	David S. Clough
J	Jeffrey M. Mennillo, et ux
K	Alan B. Clough, et ux
L	Richard Keith McCollum
M	Charles M. Jr. & Crystal R. Young
N	Dena Raye Grimes
O	Flora Patterson Woodburn
P	Karen Moore Hwilka
Q	William J. Goodfellow, et ux
R	Margaret Conaway-Torok
S	William P. Ingram
T	Keith V. Frum, et ux
U	William J. Goodfellow, et ux
V	James Arthur Shreves, et ux
W	Heritage Resources Marcellus Minerals, LLC
X	William P. Ingram
Y	James H. Williamson
Z	Erik D. Grimm
AA	Robert L. Sherman

FILE NO: 268-54-E-21  
 DRAWING NO: Clutter Unit 2H 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: February 22 2023  
 OPERATOR'S WELL NO. Clutter Unit 2H  
 API WELL NO  
 47 — 095 — 02782  
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 880' WATERSHED: Middle Island Creek QUADRANGLE: Btm Hole: Paden City  
 DISTRICT: Union, Lincoln Outlet: Middlebourne Top Hole: Middlebourne  
 COUNTY: Tyler  
 SURFACE OWNER: Eldon J. & Ruth A. Helman William P. Ingram (2); James Arthur Shreves, et ux; Heritage Resources Marcellus Minerals, LLC  
 ACREAGE: 61.83  
 ROYALTY OWNER: Eldon J. & Ruth A. Helman; Lora Keller Thomas; WVDNR; Norma R. Spencer; Jeffrey M. Mennillo, et ux; David S. Clough; William J. Goodfellow, et ux (2); Alan B. Clough, et ux  
 LEASE NO: ACREAGE: 128.55; 31.25; 86.607

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: 5,972' TVD 24,066' MD

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



## Exhibit 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	10/02/2022	23940.0	23898.0	60	Marcellus
2	10/02/2022	23859.6	23694.8	60	Marcellus
3	10/03/2022	23659.4	23494.6	60	Marcellus
4	10/04/2022	23459.2	23294.3	60	Marcellus
5	10/04/2022	23259.0	23094.1	60	Marcellus
6	10/05/2022	23058.8	22893.9	60	Marcellus
7	10/05/2022	22858.5	22693.7	60	Marcellus
8	10/06/2022	22658.3	22493.5	60	Marcellus
9	10/06/2022	22458.1	22293.3	60	Marcellus
10	10/07/2022	22257.9	22093.0	60	Marcellus
11	10/08/2022	22057.7	21892.8	60	Marcellus
12	10/08/2022	21857.4	21692.6	60	Marcellus
13	10/09/2022	21657.2	21492.4	60	Marcellus
14	10/10/2022	21457.0	21292.2	60	Marcellus
15	10/10/2022	21256.8	21091.9	60	Marcellus
16	10/11/2022	21056.6	20891.7	60	Marcellus
17	10/11/2022	20856.4	20691.5	60	Marcellus
18	10/12/2022	20656.1	20491.3	60	Marcellus
19	10/12/2022	20455.9	20291.1	60	Marcellus
20	10/13/2022	20255.7	20090.9	60	Marcellus
21	10/13/2022	20055.5	19890.6	60	Marcellus
22	10/13/2022	19855.3	19690.4	60	Marcellus
23	10/14/2022	19655.0	19490.2	60	Marcellus
24	10/14/2022	19454.8	19290.0	60	Marcellus
25	10/15/2022	19254.6	19089.8	60	Marcellus
26	10/15/2022	19054.4	18889.5	60	Marcellus
27	10/16/2022	18854.2	18689.3	60	Marcellus
28	10/16/2022	18654.0	18489.1	60	Marcellus
29	10/16/2022	18453.7	18288.9	60	Marcellus
30	10/17/2022	18253.5	18088.7	60	Marcellus
31	10/17/2022	18053.3	17888.4	60	Marcellus
32	10/17/2022	17853.1	17688.2	60	Marcellus
33	10/18/2022	17652.9	17488.0	60	Marcellus
34	10/18/2022	17452.6	17287.8	60	Marcellus
35	10/19/2022	17252.4	17087.6	60	Marcellus
36	10/19/2022	17052.2	16887.4	60	Marcellus
37	10/19/2022	16852.0	16687.1	60	Marcellus
38	10/20/2022	16651.8	16486.9	60	Marcellus
39	10/20/2022	16451.5	16286.7	60	Marcellus
40	10/20/2022	16251.3	16086.5	60	Marcellus
41	10/21/2022	16051.1	15886.3	60	Marcellus
42	10/21/2022	15850.9	15686.0	60	Marcellus
43	10/22/2022	15650.7	15485.8	60	Marcellus
44	10/22/2022	15450.5	15285.6	60	Marcellus
45	10/22/2022	15250.2	15085.4	60	Marcellus
46	10/23/2022	15050.0	14885.2	60	Marcellus
47	10/23/2022	14849.8	14685.0	60	Marcellus
48	10/23/2022	14649.6	14484.7	60	Marcellus
49	10/23/2022	14449.4	14284.5	60	Marcellus
50	10/23/2022	14249.1	14084.3	60	Marcellus
51	10/24/2022	14048.9	13884.1	60	Marcellus
52	10/24/2022	13848.7	13683.9	60	Marcellus
53	10/24/2022	13648.5	13483.6	60	Marcellus
54	10/24/2022	13448.3	13283.4	60	Marcellus
55	10/24/2022	13248.1	13083.2	60	Marcellus
56	10/24/2022	13047.8	12883.0	60	Marcellus
57	10/25/2022	12847.6	12682.8	60	Marcellus
58	10/25/2022	12647.4	12482.6	60	Marcellus
59	10/25/2022	12447.2	12282.3	60	Marcellus
60	10/25/2022	12247.0	12082.1	60	Marcellus
61	10/25/2022	12046.7	11881.9	60	Marcellus
62	10/26/2022	11846.5	11681.7	60	Marcellus
63	10/26/2022	11646.3	11481.5	60	Marcellus
64	10/26/2022	11446.1	11281.2	60	Marcellus
65	10/26/2022	11245.9	11081.0	60	Marcellus
66	10/26/2022	11045.7	10880.8	60	Marcellus
67	10/26/2022	10845.4	10680.6	60	Marcellus
68	10/27/2022	10645.2	10480.4	60	Marcellus
69	10/27/2022	10445.0	10280.1	60	Marcellus
70	10/27/2022	10244.8	10079.9	60	Marcellus
71	10/27/2022	10044.6	9879.7	60	Marcellus
72	10/27/2022	9844.3	9679.5	60	Marcellus
73	10/27/2022	9644.1	9479.3	60	Marcellus
74	10/27/2022	9443.9	9279.1	60	Marcellus
75	10/28/2022	9243.7	9078.8	60	Marcellus
76	10/28/2022	9043.5	8878.6	60	Marcellus
77	10/28/2022	8843.3	8678.4	60	Marcellus
78	10/28/2022	8643.0	8478.2	60	Marcellus
79	10/28/2022	8442.8	8278.0	60	Marcellus
80	10/29/2022	8242.6	8077.7	60	Marcellus
81	10/29/2022	8042.4	7877.5	60	Marcellus
82	10/29/2022	7842.2	7677.3	60	Marcellus
83	10/29/2022	7641.9	7477.1	60	Marcellus
84	10/29/2022	7441.7	7276.9	60	Marcellus
85	10/29/2022	7241.5	7076.7	60	Marcellus
86	10/30/2022	7041.3	6876.4	60	Marcellus
87	10/30/2022	6841.1	6676.2	60	Marcellus
88	10/30/2022	6640.8	6476.0	60	Marcellus

09/15/2023



## EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Sandstone	145	220	145	220
Silty Sandstone	220	270	220	270
Silty Shale	270	420	270	420
Shale	370	470	370	470
Silty Sandstone	420	470	420	470
Silty Shale	470	670	470	670
Silty Sandstone	670	770	670	770
Shaly Siltstone	770	870	770	870
Shaly Sandstone w/ tr coal	870	1,070	870	1,070
Sandstone	1,070	1,220	1,070	1,220
Shaly Siltstone w/ tr coal	1,220	1,270	1,220	1,270
Shaly Sandstone and siltstone	1,270	1,320	1,270	1,320
Shaly Sandstone w/ tr coal	1,320	1,420	1,320	1,420
Silty Sandstone w/ coal	1,420	1,470	1,420	1,470
Sandy Shale	1,470	1,754	1,470	1,779
Big Lime	1,784	2,177	1,779	2,219
Fifty Foot Sandstone	2,177	2,585	2,189	2,641
Gordon	2,585	2,721	2,611	2,782
Fifth Sandstone	2,721	2,912	2,752	2,980
Bayard	2,912	3,722	2,950	3,823
Speechley	3,722	3,965	3,793	4,072
Balltown	3,965	4,414	4,042	4,531
Bradford	4,414	4,772	4,501	4,899
Benson	4,772	4,984	4,869	5,118
Alexander	4,984	5,970	5,088	6,211
Sycamore	5,843	5,940	6,034	6,181
Middlesex	5,940	6,024	6,181	6,350
Burkett	6,024	6,051	6,350	6,424
Marcellus	6,051	NA	6,424	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.

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/1/2022
Job End Date:	10/30/2022
State:	West Virginia
County:	Tyler
API Number:	47-095-02782-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	CLUTTER UNIT 2H
Latitude:	39.49360000
Longitude:	-80.95607000
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,124
Total Base Water Volume (gal):	27,542,148
Total Base Non Water Volume:	0



### 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
Produced Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.64402	Density = 8.50
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.18021	

MC B-8614A	MultiChem	Biocide					
				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
Sand-Premium White-30/70	Halliburton	Proppant					
				Listed Below			
Exceletrate LX-15	Halliburton	Friction Reducer					
				Listed Below			
Chemstream StimSTREAM FR 9750	Chemstream Oilfield Services	Friction Reducer					
				Listed Below			
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			

Chemstream StimSTREAM FR 9800	Chemstream, Inc.	Friction Reducer					
				Listed Below			
HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			

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	13.11959	
			Hydrochloric acid	7647-01-0	30.00000	0.04527	
			Guar gum	9000-30-0	100.00000	0.02967	
			Complex Amine Compound	Proprietary	60.00000	0.02119	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01059	
			Glutaraldehyde	111-30-8	30.00000	0.00243	
			Alkanes, C16-20-iso-	Proprietary	25.00000	0.00228	
			Butene, homopolymer	9003-29-6	25.00000	0.00228	
			Surfactant	Proprietary	5.00000	0.00177	
			Sorbitan, mono-9- octadecenoate, (Z)	1338-43-8	5.00000	0.00177	
			Ammonium persulfate	7727-54-0	100.00000	0.00065	
			Distillates (petroleum), hydrotreated light	64742-47-8	25.00000	0.00060	
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00041	
			Ethoxylated alcohols	Proprietary	5.00000	0.00037	
			Alkoxyated polyhydric alcohol	Proprietary	1.00000	0.00035	
			Organic chloride compound	Proprietary	1.00000	0.00035	
			Methanol	67-56-1	100.00000	0.00028	
			Ethoxylated alcohols (C12-16)	68213-23-0	3.00000	0.00027	

			Oxylated phenolic resin	Proprietary	30.00000	0.00020	
			Alcohols, C11-14-iso, C-13-rich, ethoxylated	78330-21-9	5.00000	0.00012	
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00009	
			Modified thiourea polymer	Proprietary	30.00000	0.00009	
			Ethanol	64-17-5	1.00000	0.00008	
			Propargyl alcohol	107-19-7	5.00000	0.00001	
			Hexadecene	629-73-2	5.00000	0.00001	
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00001	
			Sodium glycolate	2836-32-0	0.01000	0.00000	
			Nitrated acetate salt	Proprietary	0.01000	0.00000	
			Organic salt #2	Proprietary	0.01000	0.00000	
			Acrylamide	79-06-1	0.01000	0.00000	
			Formaldehyde	50-00-0	0.01000	0.00000	
			Sodium hydroxide	1310-73-2	0.01000	0.00000	
			Organic salt #1	Proprietary	0.01000	0.00000	

\* 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)