

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

API 47-017-06936 County Doddridge District Grant  
Quad Smithburg 7.5' Pad Name Lemley Pad Field/Pool Name ----  
Farm name Brian D. Lemley & Christy M. Lemaster ET AL. Well Number Peter Unit 4H  
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 4353025m Easting 527563m  
Landing Point of Curve Northing 4353432.71m Easting 528269.98m  
Bottom Hole Northing 4355768m Easting 527515m

Elevation (ft) 1304' 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

Office of Oil and Gas  
JUN 2 2023  
WV Department of  
Environmental Protection

Date permit issued 7/7/2022 Date drilling commenced 9/12/2022 Date drilling ceased 1/3/2023  
Date completion activities began 2/13/2023 Date completion activities ceased 3/20/2023  
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 357', 613', 856' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1460', 1673' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 980' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by:  
[Signature]  
01/12/2024

**APPROVED**

API 47-017 - 06936 Farm name Brian D. Lemley & Christy M. Lemaster ET AL. Well number Peter Unit 4H

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"	130'	New	78.67#, X-60	N/A	Y
Surface	17-1/2"	13-3/8"	922'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	3511'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16398'	New	20#, P-110-ICY	N/A	Y
Tubing		2-3/8"	7856'		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	195 sx	15.6	1.18	230	0'	8 Hrs.
Surface	Class A	1030 sx	15.8	1.16	1195	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1350 sx	15.8	1.16	1566	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	2304 sx (Tail)	13.5 (Lead), 15.2(Tail)	1.26 (Tail)	2903	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15398' MD, 7284' TVD (BHL), 7290' (Deepest Point Drilled) Loggers TD (ft) 15398' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 7060'

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

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Office of Oil and Gas

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_ JUN 2 2023

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_ WV Department of Environmental Protection

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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Office of Oil and Gas  
JUN 2 2023  
WV Department of  
Environmental Protection

Please insert additional pages as applicable.

01/12/2024



LATITUDE 39°20'00"

3,884'

4,009' TO BOTTOM HOLE  
LATITUDE 39°22'30"

LONGITUDE 80°40'00"

LONGITUDE 80°40'00"

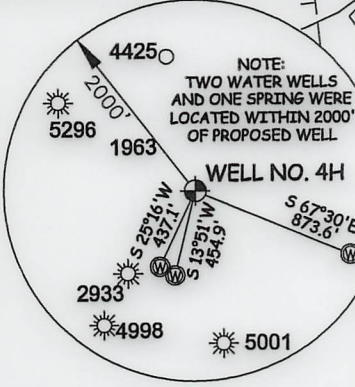
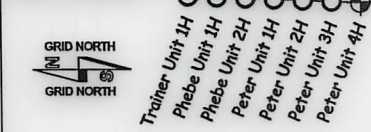
LONGITUDE 80°40'00"

### Antero Resources Corporation Well No. Peter Unit 4H

**AS DRILLED DATA:**  
**WELL 4H TOP HOLE INFORMATION:**  
 N: 303,082ft E: 1,666,085ft  
 LAT: 39°19'34.02" LON: 80°40'49.43"  
**BOTTOM HOLE INFORMATION:**  
 N: 312,084ft E: 1,666,077ft  
 LAT: 39°21'02.99" LON: 80°40'51.03"  
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE.  
 ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

**(NAD) 83 (UTM) ZONE 17 COORDS:**  
**WELL 4H TOP HOLE INFORMATION:**  
 N: 4,353,025m E: 527,563m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,355,768m E: 527,515m

#### PAD LAYOUT NOT TO SCALE



THOMAS SUMMERS P.S. 2109

DATE 05/09/23

OPERATOR'S WELL# PETERUNIT#4H

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 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 13-012WA  
 DRAWING # PETER4HAD  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

WELL TYPE: OIL GAS  LIQUID INJECTION  
 (IF "GAS") PRODUCTION  STORAGE DEEP SHALLOW   
 LOCATION: ELEVATION 1,304' AS BUILT WATERSHED MCELROY CREEK

SURFACE OWNER BRIAN D. LEMLEY & CHRISTY M. LEMASTER ET AL

OIL & GAS ROYALTY OWNER MARIETTE LEMLEY ET AL; MORRIS MOUNTAINEERS OIL & GAS, LLC; LEASE ACREAGE 66.87 AC±; 50 AC±;

DELORES NADINE DAVIS; J. P. CARR ET AL; MORRIS MOUNTAINEERS OIL & GAS, LLC; ABRAM GAIN ET UX; B&C OIL & GAS CO. ET AL; STANLEY GAIN ET AL 158.4 AC±; 273 AC±; 71 AC±; 85 AC±; 36.25 AC±; 48.75 AC±

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE  
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL  
 (SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,284' TVD 16,398' MD

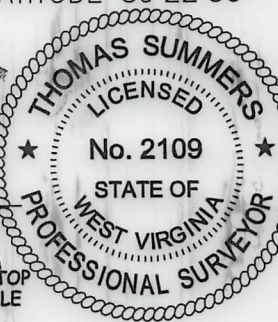
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT KEVIN ELLIS  
 ADDRESS 1615 WYNKOOP STREET ADDRESS 535 WHITE OAKS BLVD  
 FORM WW-6 DENVER, CO 80202 BRIDGEPORT, WV 26330

**NOTE**  
 1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.  
 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ANTERO RESOURCES CORPORATION.  
 3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.  
 4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.  
 5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

**LEGEND**  
 - - - Surface Owner Boundary Lines +/-  
 - - - Interior Surface Tracts +/-  
 ○ Proposed Well Path  
 ⊗ As Drilled Well Path

(NAD) 27 (UTM) ZONE 17 COORDS:  
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**BOTTOM HOLE INFORMATION:**  
 N: 14,289,832ft E: 1,730,640ft

WELL NO. 4H  
BOTTOM HOLE



JOSEPHINE DONNAHOE  
W.B. 31 PG. 4  
T.M. 9 PAR. 05  
112 AC.±

ABRAM GAIN  
ET UX LEASE

JOSEPHINE DONNAHOE  
W.B. 31 PG. 4  
T.M. 9 PAR. 14  
35.5 AC.±

DAVID E. BOWYER  
T.M. 9 PAR. 15  
475 AC.±

SUSAN B. BOGGS  
D.B. 273 PG. 96  
T.M. 9 PAR. 17  
49.87 AC.±

LAUREN D. KELLEY  
D.B. 203 PG. 693  
T.M. 10 PAR. 6  
45.52 AC.±

PHILIP MCILLIAN  
D.B. 233 PG. 389  
T.M. 9 PAR. 26  
74.94 AC.±

JAMES P. BANKERT ET AL  
D.B. 254 PG. 71  
T.M. 9 PAR. 21  
9 AC.±

DENNIS J. ZICKFOOSE  
D.B. 274 PG. 38  
T.M. 9 PAR. 22  
101 AC.±

LINDA L. MERKLE  
D.B. 233 PG. 230  
T.M. 9 PAR. 27.1  
4.1 AC.±

LAUREN D. KELLEY  
D.B. 203 PG. 693  
T.M. 10 PAR. 12  
6.06 AC.±

BORING FAMILY TRUST  
D.B. 264 PG. 91  
T.M. 9 PAR. 7.2  
35 AC.±

STELLA DARNELL  
ET VIR LEASE

DENNIS S. POWELL  
D.B. 190 PG. 670  
T.M. 9 PAR. 7.9  
26.695 AC.±

J.P. CARR  
ET AL LEASE

DENNIS S. POWELL ET AL  
D.B. 209 PG. 153  
T.M. 10 PAR. 7.8  
41.16 AC.±

DORIS FLUHARTY  
D.B. 283 PG. 493  
T.M. 9 PAR. 27  
146.95 AC.±

DENNIS S. POWELL  
D.B. 244 PG. 548  
T.M. 10 PAR. 25  
118.28 AC.±

DELORES NADINE DAVIS  
DAVIS LEASE

CHARLES D. POWELL  
D.B. 244 PG. 548  
T.M. 10 PAR. 44  
36.60 AC.±

PHILIP N. HILL  
D.B. 284 PG. 11  
T.M. 13 PAR. 35  
2.2 AC.±

PHILIP N. HILL  
D.B. 284 PG. 11  
T.M. 13 PAR. 11.2  
50 AC.±

BRIAN D. LEMLEY & CHRISTY M. LEMASTER ET AL  
D.B. 281 PG. 691  
T.M. 13 PAR. 11  
59.08 AC.±

CEM HOLDING LLC LEASE

01/12/2024

LATITUDE 39°20'00"

3,884'

4,009' TO BOTTOM HOLE  
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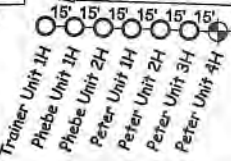
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PAD LAYOUT

NOT TO SCALE

N 02°36' E



THOMAS SUMMERS P.S. 2109

DATE 05/09/23

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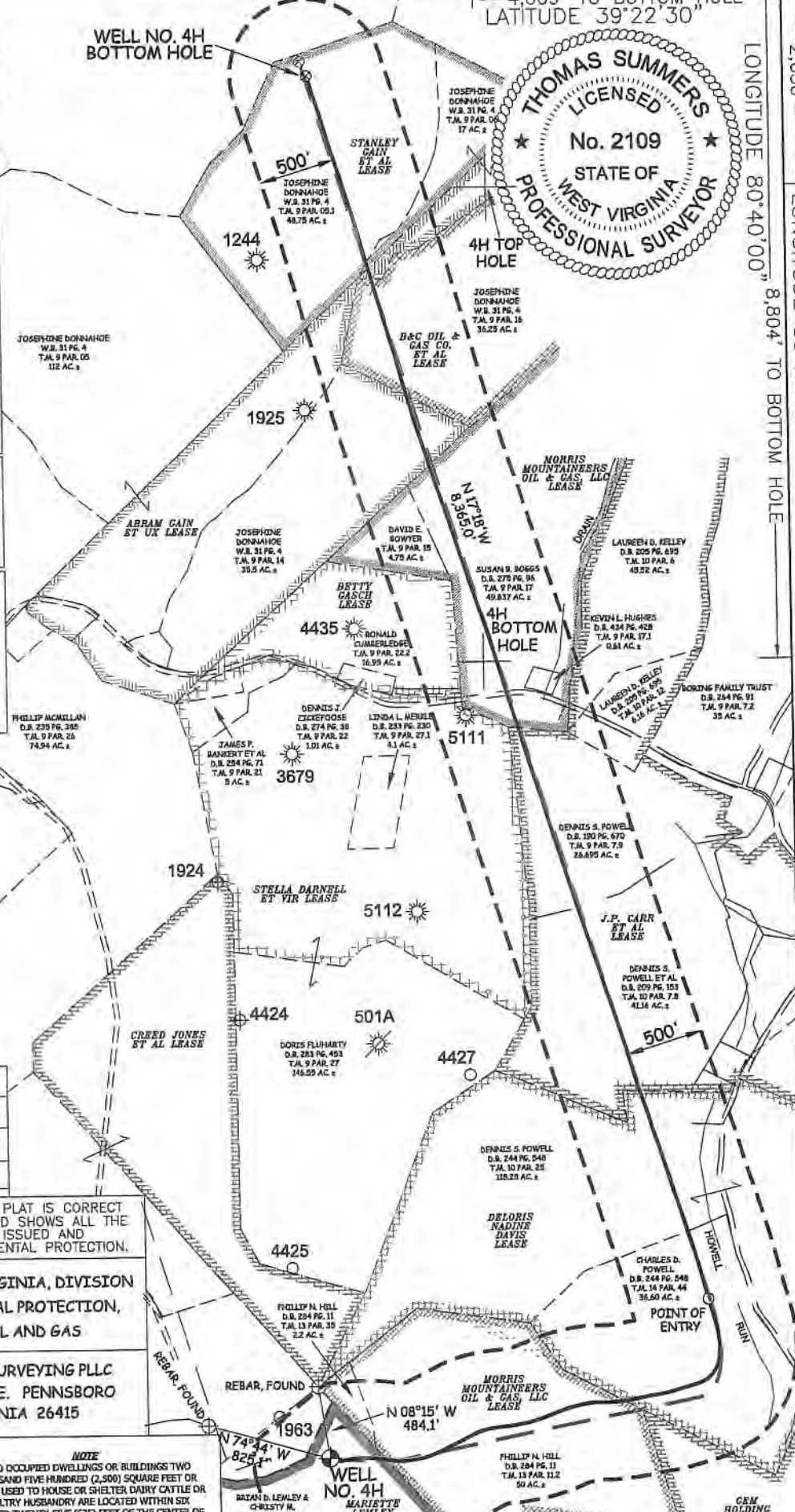
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WV NORTH ZONE  
GRID NORTH

WELL NO. 4H  
BOTTOM HOLE



01/12/2024

API 47-017-06936 Farm Name Brian D. Lemley & Christy M. Lemaster ET AL Well Number Peter Unit 4H

**Exhibit 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2/13/2023	16262	16217	60	Marcellus
2	2/13/2023	16179.79675	16015.7805	60	Marcellus
3	2/13/2023	15980.57724	15816.561	60	Marcellus
4	2/13/2023	15781.35772	15617.3415	60	Marcellus
5	2/14/2023	15582.13821	15418.122	60	Marcellus
6	2/14/2023	15382.9187	15218.9024	60	Marcellus
7	2/14/2023	15183.69919	15019.6829	60	Marcellus
8	2/14/2023	14984.47967	14820.4634	60	Marcellus
9	2/14/2023	14785.26016	14621.2439	60	Marcellus
10	2/14/2023	14586.04065	14422.0244	60	Marcellus
11	2/15/2023	14386.82114	14222.8049	60	Marcellus
12	2/15/2023	14187.60163	14023.5854	60	Marcellus
13	2/15/2023	13988.38211	13824.3659	60	Marcellus
14	2/15/2023	13789.1626	13625.1463	60	Marcellus
15	2/15/2023	13589.94309	13425.9268	60	Marcellus
16	2/15/2023	13390.72358	13226.7073	60	Marcellus
17	2/15/2023	13191.50407	13027.4878	60	Marcellus
18	2/16/2023	12992.28455	12828.2683	60	Marcellus
19	2/16/2023	12793.06504	12629.0488	60	Marcellus
20	2/16/2023	12593.84553	12429.8293	60	Marcellus
21	2/16/2023	12394.62602	12230.6098	60	Marcellus
22	2/17/2023	12195.4065	12031.3902	60	Marcellus
23	2/17/2023	11996.18699	11832.1707	60	Marcellus
24	2/17/2023	11796.96748	11632.9512	60	Marcellus
25	2/17/2023	11597.74797	11433.7317	60	Marcellus
26	2/17/2023	11398.52846	11234.5122	60	Marcellus
27	2/17/2023	11199.30894	11035.2927	60	Marcellus
28	2/18/2023	11000.08943	10836.0732	60	Marcellus
29	2/18/2023	10800.86992	10636.8537	60	Marcellus
30	2/18/2023	10601.65041	10437.6341	60	Marcellus
31	2/18/2023	10402.43089	10238.4146	60	Marcellus
32	2/18/2023	10203.21138	10039.1951	60	Marcellus
33	2/18/2023	10003.99187	9839.97561	60	Marcellus
34	2/19/2023	9804.772358	9640.7561	60	Marcellus
35	2/19/2023	9605.552846	9441.53659	60	Marcellus
36	2/19/2023	9406.333333	9242.31707	60	Marcellus
37	2/19/2023	9207.113821	9043.09756	60	Marcellus
38	2/19/2023	9007.894309	8843.87805	60	Marcellus
39	2/19/2023	8808.674797	8644.65854	60	Marcellus
40	2/20/2023	8609.455285	8445.43902	60	Marcellus
41	2/20/2023	8410.235772	8246.21951	60	Marcellus
42	2/20/2023	8211.01626	8047	60	Marcellus

RECEIVED  
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JUN 2 2023  
West Virginia Department of Environmental Protection

JUN 8 2023

WV Department of Environmental Protection

API 47-017-06936 Farm Name Brian D. Lemley & Christy M. Lemaster ET AL Well Number Peter

**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	2/13/2023	76.4	8392.2	6945.64	4937.564	175240	211431	N/A
2	2/13/2023	86.3	8318.9	5955.67	4760.222	400780	288573	N/A
3	2/13/2023	90.4	8442.3	5985.77	4965.032	404850	283573	N/A
4	2/13/2023	91.7	8402.6	6372.22	4904.551	400100	271775	N/A
5	2/14/2023	91.1	8465.2	6196.41	4583.92	397010	269536	N/A
6	2/14/2023	89.8	8414.3	5907.56	4379.332	393700	266412	N/A
7	2/14/2023	91.7	8271.3	3774.02	4967.084	402540	270769	N/A
8	2/14/2023	91.3	8494.2	5951.53	5507.181	401160	269931	N/A
9	2/14/2023	83.1	8030.1	5985.28	5295.224	399900	267389	N/A
10	2/14/2023	92.8	8380.0	5434	4942	390880	266450	N/A
11	2/15/2023	92.4	8506.8	5903.9	4880.866	393040	263285	N/A
12	2/15/2023	89.7	8503.0	6114	5080	394870	267743	N/A
13	2/15/2023	95.3	8400.0	6371	5148	395960	267247	N/A
14	2/15/2023	94.4	8334.5	5674.72	5029.226	399180	268887	N/A
15	2/15/2023	92.8	8386.6	5731	4471.028	401090	264868	N/A
16	2/15/2023	95.9	8389.0	5970.74	5656.458	407840	268011	N/A
17	2/15/2023	95.8	8277.1	5627.94	5347.582	397390	264613	N/A
18	2/16/2023	96.0	8399.5	5615.4	5000.922	390560	264285	N/A
19	2/16/2023	92.9	8384.4	5998.19	5086.186	393520	262452	N/A
20	2/16/2023	93.8	8346.6	5883.95	5143.007	397040	271658	N/A
21	2/16/2023	93.4	8539.0	6030	4899	398000	287419	N/A
22	2/17/2023	97.0	8506.2	5922.02	5382.018	400920	271583	N/A
23	2/17/2023	98.0	8345.2	5940.58	5154.385	394860	315480	N/A
24	2/17/2023	95.2	8285.4	6244.92	4977.139	398140	267796	N/A
25	2/17/2023	94.9	8309.5	5985.09	5620.041	402790	269967	N/A
26	2/17/2023	97.3	8337.5	6909.16	5467.868	391020	288237	N/A
27	2/17/2023	96.9	8240.0	6186.22	5228.246	393890	262737	N/A
28	2/18/2023	96.9	8184.1	6316.53	5121.511	396950	266407	N/A
29	2/18/2023	96.4	8107.4	6080.89	4205.597	396250	270276	N/A
30	2/18/2023	96.9	8129.2	5965.91	4782.21	399150	265020	N/A
31	2/18/2023	95.5	7882.0	5597	5146	397090	277994	N/A
32	2/18/2023	97.0	7953.0	5185.58	5468.527	400420	268235	N/A
33	2/18/2023	98.1	8008.6	5572.94	5436.793	396280	263921	N/A
34	2/19/2023	98.4	7767.6	5598.19	4387.694	396790	263819	N/A
35	2/19/2023	97.7	7945.4	5575.3	5266.993	393680	263311	N/A
36	2/19/2023	96.7	7845.0	5340	5695	400000	262196	N/A
37	2/19/2023	94.9	7783.0	5160.27	4896.193	395930	265698	N/A
38	2/19/2023	97.3	7902.0	5588	4863	400540	267493	N/A
39	2/19/2023	97.1	7867.0	5449.29	5611.903	400340	265343	N/A
40	2/20/2023	96.8	7658.4	5800.05	5773.578	396230	264462	N/A
41	2/20/2023	97.5	7655.5	5619.75	5725.988	399200	266929	N/A
42	2/20/2023	97.6	7370.0	5443	5509	425430	272899	N/A
	AVERAGE	94	8,194	5,831	5,112	16,510,550	11,296,110	TOTAL

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## 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, rr Siltstone	100	450	100	450
Silty Sandstone, tr Shale	450	510	450	510
Silty Sandstone, com Coal	510	630	510	630
Silty Sandstone	570	720	570	720
Sandstone, com LS	630	720	630	720
Silty Sandstone	720	780	720	780
Silty Sandstone, tr Shale	780	1,070	780	1,070
Sandstone, rr Siltstone	1,070	1,220	1,070	1,220
Silty Sandstone	1,220	1,520	1,220	1,520
Silty Sandstone, com Shale	1,520	1,670	1,520	1,670
Sandstone	1,670	1,770	1,670	1,770
Silty Sandstone, tr Shale	1,770	1,870	1,770	1,870
Sandstone, tr Coal	1,870	1,920	1,870	1,920
Sandstone	1,920	1,970	1,920	1,970
Silty Sandstone	1,970	2,143	1,970	2,236
Big Lime	2,173	2,749	2,236	2,884
Fifty Foot Sandstone	2,749	2,928	2,854	3,082
Gordon	2,928	3,265	3,052	3,460
Fifth Sandstone	3,265	3,327	3,430	3,530
Bayard	3,327	3,997	3,500	4,278
Speechley	3,997	4,255	4,248	4,566
Balltown	4,255	4,791	4,536	5,149
Bradford	4,791	5,235	5,119	5,636
Benson	5,235	5,536	5,606	5,985
Alexander	5,536	6,932	5,955	7,556
Sycamore	6,751	6,902	7,342	7,526
Middlesex	6,902	7,053	7,526	7,746
Burkett	7,053	7,081	7,746	7,796
Tully	7,081	7,169	7,796	7,995
Marcellus	7,169	NA	7,995	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:	2/13/2023
Job End Date:	2/20/2023
State:	West Virginia
County:	Doddridge
API Number:	47-017-06936-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Peter 4H
Latitude:	39.32612000
Longitude:	-80.68040000
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,290
Total Base Water Volume (gal):	11,717,865
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
Fresh Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	85.34184	Density = 8.34
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.16353	

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WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
Chemstream StimSTREAM FR 9750	Chemstream Oilfield Services	Friction Reducer					
				Listed Below			
LEGEND(TM) LD-7750W	MultiChem	Scale Control					
				Listed Below			
HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
MC B-8614A	MultiChem	Biocide					
				Listed Below			

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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	14.41814
			Hydrochloric acid	7647-01-0	30.00000	0.04365
			Distillates (petroleum), hydrotreated light	64742-47-8	25.00000	0.01783
			Methanol	67-56-1	100.00000	0.00724
			Guar gum	9000-30-0	100.00000	0.00480
			Alcohols, C11-14-iso, C-13-rich, ethoxylated	78330-21-9	5.00000	0.00357
			Glutaraldehyde	111-30-8	30.00000	0.00250
			Phosphoric Acid Salt	Proprietary	5.00000	0.00058
			Sodium chloride	7647-14-5	5.00000	0.00058
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00042
			Ammonium persulfate	7727-54-0	100.00000	0.00009
			Ethanol	64-17-5	1.00000	0.00008
			Modified thiourea polymer	Proprietary	30.00000	0.00008
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00008
			Oxylated phenolic resin	Proprietary	30.00000	0.00003
			Hexadecene	629-73-2	5.00000	0.00001
			Ethoxylated alcohols	Proprietary	5.00000	0.00001
			Propargyl alcohol	107-19-7	5.00000	0.00001
			Formaldehyde	50-00-0	0.10000	0.00001
			C.I. pigment Orange 5	3468-63-1	1.00000	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)

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