

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

RECEIVED
of Oil and Gas
APR 07 2023

Department of
Environmental Protection

API 47 - 085 - 10421 County Ritchie District Union
Quad Oxford 7.5' Pad Name Cashew Field/Pool Name -----
Farm name Elmer W. Pierce Well Number Shays 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 4335815m Easting 512284m
Landing Point of Curve Northing 4335555.41m Easting 511881.21m
Bottom Hole Northing 4331635m Easting 513240m

Elevation (ft) 1040' 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 4/6/2022 Date drilling commenced 5/20/2022 Date drilling ceased 8/13/2022
Date completion activities began 10/20/2022 Date completion activities ceased 12/19/2022
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 184,53,236' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1847,1759,1709' Void(s) encountered (Y/N) depths No
Coal depth(s) ft None Reported Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:

APPROVED

IMR
05/11/2023

API 47- 085 - 10421 Farm name Elmer W. Pierce Well number Shays 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	20"	16"	130'	New	62.64#, X-60	N/A	Y
Surface	13-1/2"	10-3/4"	354'	New	40.5#, J-55	N/A	Y
Coal							
Intermediate 1	9-7/8"	7-5/8"	2657'	New	26.4#, L-80	N/A	Y
Intermediate 2							
Intermediate 3							
Production	6-3/4"	5"	20682'	New	18#, P-110CY	N/A	Y
Tubing		2-3/8"	6613'		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 ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	81 sx	15.6	1.18	96	0'	8 Hrs.
Surface	Class A	220 sx	15.8	1.17	257	0'	8 Hrs.
Coal							
Intermediate 1	Class A	625 sx	15.8	1.16	725	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	745 sx (Lead)	11 (Lead), 8.33 (Tail)	2.7 (Lead)	2012	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 23100' MD, 6900' TVD (BHL), 6435' (Deepest Point Drilled) Loggers TD (ft) 23100' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5760'

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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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

05/11/2023

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PERFORATION RECORD

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

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)
*PLEASE SEE ATTACHED EXHIBIT 2								

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Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6362' (TOP) TVD	6939' (TOP) MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1848 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 13054 mcfpd Oil 174 bpd NGL --- bpd Water 1526 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
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***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 GR Energy Services
Address 2315 PA-66 City Delmont State PA Zip 15626

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 3/14/2023

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

05/11/2023

LATITUDE 39°12'30" 6,984'

LATITUDE 39°10'00" 3,945' TO BOTTOM HOLE

Antero Resources Corporation Well No. Shays 1H

AS DRILLED DATA: WELL 1H TOP HOLE INFORMATION: N: 247,441ft E: 1,615,005ft LAT: 39°10'16.98" LON: 80°51'28.68" BOTTOM HOLE INFORMATION: N: 233,888ft E: 1,617,843ft LAT: 39°08'03.45" LON: 80°50'50.06" 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 1H TOP HOLE INFORMATION: N: 4,335,814m E: 512,284m BOTTOM HOLE INFORMATION: N: 4,331,700m E: 513,218m

(NAD) 27 (UTM) ZONE 17 COORDS: WELL 1H TOP HOLE INFORMATION: N: 14,224,370ft E: 1,680,671ft POINT OF ENTRY INFORMATION: N: 14,223,839ft E: 1,679,300ft BOTTOM HOLE INFORMATION: N: 14,210,871ft E: 1,683,734ft

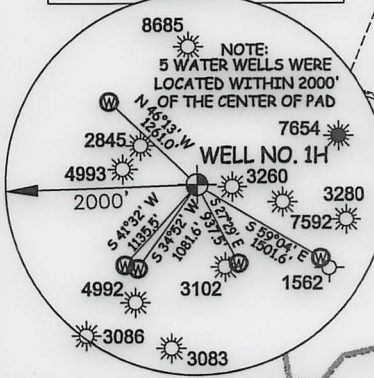
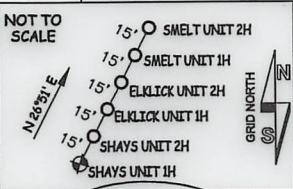


Table listing well numbers and names for Southwest District - Doddridge County and Union District - Ritchie County. Includes names like David Ball, Lorry Gander, WF Smith, Lois Gander, Elmer Pierce, Larry Gander, Isaac Richards, Larry Gander, Brian Vansant, James Haught, Brian Vansant, Jeffrey Bailey, Brian Vansant, Brown Goodwin, Brian Vansant, Charles Leonard, Brian Vansant, Brown Goodwin, James Beck, Coy Adams, Harvey Shepler, Arden Cogar, Danita Hiley, Brian Harriman, James Beck, Brian Vansant, Mark Vansant, Danita Hiley, Brian Harriman, Randall Hess, Steven Lusk, Kenny Osbourne, Kenny Osbourne, Kenny Osbourne, Kent Grotjan, Joshua Friedman, Miles Ball, M E Church, Kenny Osbourne, Kenny Osbourne, Brian Vansant, James Haught, Miles Ball, Kent Grotjan, Douglas Maxson, Douglas Maxson, Douglas Maxson, Mary Deberry, Linda Jennings, Clarence Bush, Patricia Shepler, Daryl Shepler, Terrell Henderson, Santi Italiano, Santi Italiano, Santi Italiano, Clarence Bush, Jon Bonnell, Jon Bonnell, Daryl Shepler, Darlene Nailor, Harold Pierce, WVDOT.

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 # 21-015WA DRAWING # SHAYS1HAD SCALE 1" = 2000' MINIMUM DEGREE OF ACCURACY SUBMETER PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

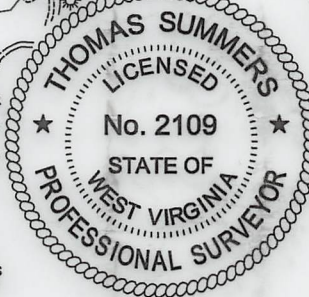
LEGEND: Surface Owner Boundary Lines +/-, Interior Surface Tracts +/-, Proposed Well Path, As Drilled Well Path. THOMAS SUMMERS P.S. 2109

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

DATE 03/17/23 OPERATOR'S WELL# SHAYS 1H

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ 47 - 085 - 10421 (IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X STATE COUNTY PERMIT LOCATION: ELEVATION 1,019' -AS BUILT WATERSHED SOUTH FORK HUGHES RIVER QUADRANGLE OXFORD 7.5' DISTRICT UNION COUNTY RITCHIE SURFACE OWNER ELMER W. PIERCE ACREAGE 67.78 ACRES +/- 05/11/2023

OIL & GAS RENTAL OWNERS: R.F. KEISTER ET AL.; DELLA M. SHEPLER ET AL.; JACOB PIERCE ET AL.; LEASE ACREAGE 70 AC±; 48 AC±; 31 AC±; RALPH JETT ET UX; MARY J. BRITTON ET UX; DJ RICHARDS ET UX; FONDA COX; ELIZABETH E. BRITTON; 148 AC±; 69 AC±; 38.2 AC±; 10.5 AC±; 160.75 AC±; JOSEPH C. DONOVAN ET UX; MILES S. BALL; DARLENE BOSTON; CHAD W. JOHNSON; HARVEY SHEPLER ET AL.; CLARENCE E. BUSH ET UX; 6.37 AC±; 0.21 AC±; 100 AC±; 165 AC±; 188 AC±; 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 6,397' TVD 20,682' MD WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT KEVIN ELLIS ADDRESS 1615 WYNKOOP ST. ADDRESS 535 WHITE OAKS BLVD 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.

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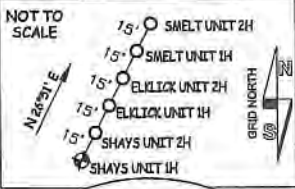


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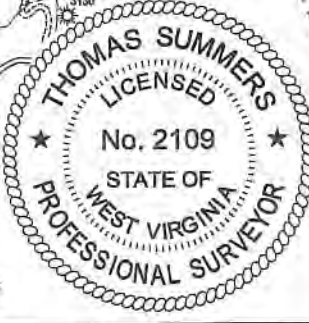
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LEGEND table with symbols for Surface Owner Boundary Lines +/-, Interior Surface Tracts +/-, Proposed Well Path, and As Drilled Well Path.

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API 47-085-10421 Farm Name Elmer W. Pierce Well Number Shavs Unit 1H

Exhibit 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	11/11/2022	20547.6	20507	60	Marcellus
2	11/12/2022	20469.37811	20303.27	60	Marcellus
3	11/12/2022	20267.64677	20101.54	60	Marcellus
4	11/13/2022	20065.91542	19899.81	60	Marcellus
5	11/13/2022	19864.18408	19698.07	60	Marcellus
6	11/14/2022	19662.45274	19496.34	60	Marcellus
7	11/14/2022	19460.72139	19294.61	60	Marcellus
8	11/14/2022	19258.99005	19092.88	60	Marcellus
9	11/15/2022	19057.25871	18891.15	60	Marcellus
10	11/15/2022	18855.52736	18689.42	60	Marcellus
11	11/15/2022	18653.79602	18487.69	60	Marcellus
12	11/16/2022	18452.06468	18285.96	60	Marcellus
13	11/16/2022	18250.33333	18084.22	60	Marcellus
14	11/17/2022	18048.60199	17882.49	60	Marcellus
15	11/17/2022	17846.87065	17680.76	60	Marcellus
16	11/18/2022	17645.1393	17479.03	60	Marcellus
17	11/18/2022	17443.40796	17277.30	60	Marcellus
18	11/19/2022	17241.67662	17075.57	60	Marcellus
19	11/19/2022	17039.94527	16873.84	60	Marcellus
20	11/19/2022	16838.21393	16672.10	60	Marcellus
21	11/20/2022	16636.48259	16470.37	60	Marcellus
22	11/20/2022	16434.75124	16268.64	60	Marcellus
23	11/20/2022	16233.0199	16066.91	60	Marcellus
24	11/20/2022	16031.28856	15865.18	60	Marcellus
25	11/21/2022	15829.55721	15663.45	60	Marcellus
26	11/21/2022	15627.82587	15461.72	60	Marcellus
27	11/21/2022	15426.09453	15259.99	60	Marcellus
28	11/22/2022	15224.36318	15058.25	60	Marcellus
29	11/22/2022	15022.63184	14856.52	60	Marcellus
30	11/22/2022	14820.9005	14654.79	60	Marcellus
31	11/23/2022	14619.16915	14453.06	60	Marcellus
32	11/23/2022	14417.43781	14251.33	60	Marcellus
33	11/23/2022	14215.70647	14049.60	60	Marcellus
34	11/24/2022	14013.97512	13847.87	60	Marcellus
35	11/24/2022	13812.24378	13646.13	60	Marcellus
36	11/25/2022	13610.51244	13444.40	60	Marcellus
37	11/25/2022	13408.78109	13242.67	60	Marcellus
38	11/25/2022	13207.04975	13040.94	60	Marcellus
39	11/26/2022	13005.31841	12839.21	60	Marcellus
40	11/26/2022	12803.58706	12637.48	60	Marcellus
41	11/26/2022	12601.85572	12435.75	60	Marcellus
42	11/27/2022	12400.12438	12234.01	60	Marcellus
43	11/27/2022	12198.39303	12032.28	60	Marcellus
44	11/27/2022	11996.66169	11830.55	60	Marcellus
45	11/27/2022	11794.93035	11628.82	60	Marcellus
46	11/28/2022	11593.199	11427.09	60	Marcellus
47	11/28/2022	11391.46766	11225.36	60	Marcellus
48	11/28/2022	11189.73632	11023.63	60	Marcellus
49	11/29/2022	10988.00498	10821.90	60	Marcellus
50	11/29/2022	10786.27363	10620.16	60	Marcellus
51	11/29/2022	10584.54229	10418.43	60	Marcellus
52	11/30/2022	10382.81095	10216.70	60	Marcellus
53	11/30/2022	10181.0796	10014.97	60	Marcellus
54	11/30/2022	9979.348259	9813.24	60	Marcellus
55	12/1/2022	9777.616915	9611.51	60	Marcellus
56	12/1/2022	9575.885572	9409.78	60	Marcellus
57	12/2/2022	9374.154229	9208.04	60	Marcellus
58	12/2/2022	9172.422886	9006.31	60	Marcellus
59	12/2/2022	8970.691542	8804.58	60	Marcellus
60	12/2/2022	8768.960199	8602.85	60	Marcellus
61	12/2/2022	8567.228856	8401.12	60	Marcellus
62	12/2/2022	8365.497512	8199.39	60	Marcellus
63	12/3/2022	8163.766169	7997.66	60	Marcellus
64	12/3/2022	7962.034826	7795.92537	60	Marcellus
65	12/3/2022	7760.303483	7594.19403	60	Marcellus
66	12/3/2022	7558.572139	7392.46269	60	Marcellus
67	12/3/2022	7356.840796	7190.73134	60	Marcellus
68	12/4/2022	7155.109453	6989	60	Marcellus

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API 47-085-10421 Farm Name, Elmer W. Pierce Well Number Shavs 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	10/20/2022	69.1	8440	5505	4613	171020	229896	N/A
2	10/21/2022	69.2	8786	6208	3845	414050	325409	N/A
3	10/21/2022	65.6	8721	6119	3249	403874	349899	N/A
4	10/22/2022	70.5	8569	6268	3686	408895	394281	N/A
5	10/22/2022	72.4	8752	6446	3514	409355	270490	N/A
6	10/22/2022	76.5	8687	6359	3689	400109	326171	N/A
7	10/22/2022	75.2	8662	6256	3378	406675	313494	N/A
8	10/22/2022	68.4	8604	6117	3942	397425	308008	N/A
9	10/23/2022	70.7	8674	6112	4596	408937	309653	N/A
10	10/23/2022	73.6	8703	6258	3517	417870	323334	N/A
11	10/23/2022	75.9	8756	6311	3460	414537	320385	N/A
12	10/23/2022	71.6	8596	7082	3909	414848	303045	N/A
13	10/24/2022	67.0	8264	6638	4026	410772	299437	N/A
14	10/24/2022	73.3	8805	5653	3777	407848	305567	N/A
15	10/24/2022	71.9	8613	9000	3498	414630	320849	N/A
16	10/24/2022	72.7	8652	6939	3668	400685	291401	N/A
17	10/25/2022	74.4	8633	6872	3482	401426	285336	N/A
18	10/25/2022	75.8	8651	6585	4043	407164	298260	N/A
19	10/25/2022	77.7	8493	8751	3419	407991	330555	N/A
20	10/25/2022	72.8	8633	8548	3293	415259	310330	N/A
21	10/25/2022	70.7	8443	6915	3832	401768	341542	N/A
22	10/26/2022	76.6	8516	8118	3320	410256	293121	N/A
23	10/26/2022	72.7	8479	8426	3129	402168	343599	N/A
24	10/26/2022	81.2	8522	8869	3139	399485	302257	N/A
25	10/26/2022	73.7	8524	6182	3242	399575	342391	N/A
26	10/27/2022	67.9	8639	8504	2885	415737	338498	N/A
27	10/27/2022	79.6	8645	8824	3115	409763	301266	N/A
28	10/27/2022	77.1	8610	8628	3038	412669	303178	N/A
29	10/27/2022	82.5	8602	5828	3199	405771	294239	N/A
30	10/28/2022	81.4	8620	6883	3010	411831	305195	N/A
31	10/28/2022	75.6	8386	8582	2716	406654	339272	N/A
32	10/28/2022	79.4	8451	8144	2917	404279	293520	N/A
33	10/28/2022	79.5	8561	6735	3006	406864	291671	N/A
34	10/29/2022	81.8	8483	6386	2995	419391	296404	N/A
35	10/29/2022	81.4	8519	6387	2921	420368	303407	N/A
36	10/29/2022	79.2	8449.788	8378.37	2914.965	397430	357438	N/A
37	10/29/2022	80.4	8310	8013	2634	396141	292240	N/A
38	10/29/2022	81.4	8525	6432	3727	417703	293045	N/A
39	10/30/2022	86.8	8349	6630	3036	411117	294738	N/A
40	10/30/2022	88.5	8181	6546	3080	419400	297767	N/A
41	10/30/2022	87.0	8219	7825	3023	398142	291485	N/A
42	10/30/2022	85.3	8362	6499	3115	411883	295524	N/A
43	10/31/2022	86.5	8399	6327	3086	406146	314667	N/A
44	10/31/2022	86.7	8211	3548	2904	410251	291967	N/A
45	10/31/2022	85.1	8179	7330	3383	415478	316023	N/A
46	10/31/2022	85.1	8477	8345	3080	398769	292441	N/A
47	10/31/2022	82.7	8196	8465	2841	408544	298788	N/A
48	11/1/2022	84.2	8352	7055	3085	416781	293802	N/A
49	11/1/2022	86.5	8351	6472	3195	411363	289109	N/A
50	11/1/2022	87.7	8287	7323	3018	402490	299871	N/A
51	11/1/2022	86.3	8371	6192	3066	414470	308081	N/A
52	11/1/2022	89.9	7886	6418	3004	403905	288569	N/A
53	11/2/2022	85.4	7917	6627	3492	410850	302283	N/A
54	11/2/2022	87.6	8204	5045	3090	410070	291418	N/A
55	11/2/2022	90.4	8140	6551	3160	412531	287688	N/A
56	11/2/2022	88.4	8261	6855	3413	407693	288513	N/A
57	11/2/2022	87.4	7641	5045	3151	406684	294955	N/A
58	11/3/2022	84.7	7879.0	6486.0	2986.0	410624.0	346907.0	N/A
59	11/3/2022	88.0	8056.0	6066.0	3265.0	401323.0	290145.0	N/A
60	11/3/2022	85.7	8006.0	5784.0	5458.0	405019.0	289743.0	N/A
61	11/3/2022	89.8	7589.0	6323.0	2849.0	411913.0	293866.0	N/A
62	11/3/2022	79.9	7583.0	6611.0	3178.0	404406.0	317626.0	N/A
63	11/4/2022	86.1	7089.0	6418.0	3859.0	412006.0	297795.0	N/A
64	11/4/2022	86.1	7103.0	6930.0	3460.0	411389.0	299463.0	N/A
65	11/4/2022	85.0	7634.0	6548.0	2818.0	411768.0	303139.0	N/A
66	11/4/2022	87.8	7562.0	6559.0	2703.0	397640.0	339813.0	N/A
67	11/5/2022	87.2	7336.0	5753.0	3085.0	413934.0	310673.0	N/A
68	11/5/2022	85.6	7334.9	5213.4	2735.7	411440.0	294776.0	N/A
	AVERAGE	80	8,311	6,824	3,323	27,539,252	20,869,718	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
Sandy Siltstone, tr LS	100	280	100	280
Sandy Siltstone, occ LS	280	430	280	430
Shaly Siltstone, tr SS	430	490	430	490
Shaly Siltstone, Coal	490	520	490	520
Shaly Siltstone, occ SS, tr Coal	520	610	520	610
Shaly Siltstone	610	730	610	730
Silty Shale, tr ls, coal	730	820	730	820
Sandy Shale, tr coal	820	970	820	970
Shaly Sandstone, tr coal	970	1,300	970	1,300
Sandy Shale, occ Siltstone	1,300	1,540	1,300	1,540
Silty Shale, occ sandstone	1,540	1,930	1,540	1,930
Shale, occ sandstone	1,930	2,050	1,930	2,050
Sandy Siltstone, occ shale	2,050	1,854	2,050	1,892
Big Lime	1,884	2,398	1,892	2,456
Fifty Foot Sandstone	2,398	2,597	2,426	2,666
Gordon	2,597	2,878	2,636	2,959
Fifth Sandstone	2,878	2,970	2,929	3,055
Bayard	2,970	3,691	3,025	3,808
Speechley	3,691	3,847	3,778	3,970
Balltown	3,847	4,398	3,940	4,548
Bradford	4,398	4,793	4,518	4,960
Benson	4,793	5,040	4,930	5,219
Alexander	5,040	6,225	5,189	6,557
Sycamore	6,023	6,195	6,272	6,527
Middlesex	6,195	6,305	6,527	6,761
Burkett	6,305	6,343	6,761	6,867
Tully	6,343	6,362	6,867	6,939
Marcellus	6,362	NA	6,939	NA

Marcellus

*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:	10/20/2022
Job End Date:	11/5/2022
State:	West Virginia
County:	Ritchie
API Number:	47-085-10421-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	SHAYS UNIT 1H
Latitude:	39.17138000
Longitude:	-80.85797000
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,424
Total Base Water Volume (gal):	22,030,077
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
Produced Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.97425	Density = 8.50
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.14283	

HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
MC B-8614A	MultiChem	Biocide					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
Chemstream StimSTREAM FR 2800	Chemstream, Inc.	Friction Reducer					
				Listed Below			
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
Sand-Premium White-30/70	Halliburton	Proppant					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			

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Excellerate LX-15	Halliburton	Friction Reducer					
				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	12.79119	
			Hydrochloric acid	7647-01-0	30.00000	0.03756	
			Guar gum	9000-30-0	100.00000	0.02639	
			Distillates, (petroleum), hydrotreated light	64742-47-8	25.00000	0.01447	
			Complex Amine Compound	Proprietary	60.00000	0.00968	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.00484	
			Alcohols, C11-14-iso, C-13-rich, ethoxylated	78330-21-9	5.00000	0.00289	
			Glutaraldehyde	111-30-8	30.00000	0.00239	
			Ammonium persulfate	7727-54-0	100.00000	0.00086	
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00081	
			Surfactant	Proprietary	5.00000	0.00081	
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00040	
			Oxylated phenolic resin	Proprietary	30.00000	0.00026	
			Methanol	67-56-1	100.00000	0.00024	
			Ethoxylated alcohols	Proprietary	5.00000	0.00017	
			Organic chloride compound	Proprietary	1.00000	0.00016	
			Alkoxyated polyhydric alcohol	Proprietary	1.00000	0.00016	
			Ethanol	64-17-5	1.00000	0.00008	
			Modified thiourea polymer	Proprietary	30.00000	0.00007	

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			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00007	
			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	
			Acrylamide	79-06-1	0.01000	0.00000	
			Sodium hydroxide	1310-73-2	0.01000	0.00000	
			Nitrated acetate salt	Proprietary	0.01000	0.00000	
			Sodium glycolate	2836-32-0	0.01000	0.00000	
			Organic salt #1	Proprietary	0.01000	0.00000	
			Formaldehyde	50-00-0	0.01000	0.00000	
			Organic salt #2	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)

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