

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

API 47-017-06928 County Doddridge District West Union  
Quad West Union 7.5' Pad Name OXFD 98 Field/Pool Name -----  
Farm name Michael R. Britton & Angela D. Pratt Well Number Conifer 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 4344917m Easting 517310m  
Landing Point of Curve Northing 4344955.85m Easting 516481.48m  
Bottom Hole Northing 4346317m Easting 516081m

Elevation (ft) 1120' GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
Air - Foam & 4% KCL  
Mud - Polymer

Date permit issued 6/16/2022 Date drilling commenced 7/6/2022 Date drilling ceased 9/2/2022  
Date completion activities began 11/26/2022 Date completion activities ceased 12/31/2022  
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 123, 1001' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1653' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 120' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

**APPROVED**

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Reviewed by: JMC  
12/08/2023

API 47-017 - 06928 Farm name Michael R. Britton & Angela D. Pratt Well number Conifer Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	28"	20"	125.5'	New	78.67#, X-60	N/A	Y
Surface	17-1/2"	13-3/8"	348'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2739'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	12721'	New	20#, P-110	N/A	Y
Tubing		2-3/8"	7091'		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	218 sx	15.6	1.18	257	0'	8 Hrs.
Surface	Class A	380 sx	15.6	1.20	456	0'	8 Hrs.
Coal							
Intermediate 1	Class A	903 sx	15.6	1.20	1084	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	4265 sx (Tail)	13.5 (Lead), 15.2(Tail)	1.26 (Tail)	5374	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16000' MD, 7200' TVD (BHL), 6702' (Deepest Point Drilled) Loggers TD (ft) 16000' MD

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) \_\_\_\_\_

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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API 47- 017 - 06928 Farm name Michael R. Britton & Angela D. Pratt Well number Conifer Unit 1H

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>6575' (TOP)</u>	<u>TVD</u>	<u>7377' (TOP) MD</u>
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 2394 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 10396 mcfpd Oil 106 bpd NGL --- bpd Water 200 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 <sub>2</sub> S, ETC)
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**\*PLEASE SEE ATTACHED EXHIBIT 3**

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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 Schlumberger US Land  
Address 1080 US-33 City Weston State WV Zip 26452

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 3/16/2023

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

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**Exhibit 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	11/26/2022	12613	12570	60	Marcellus
2	11/27/2022	12530.72	12361.32	60	Marcellus
3	11/27/2022	12325.04	12155.64	60	Marcellus
4	11/27/2022	12119.36	11949.96	60	Marcellus
5	11/27/2022	11913.68	11744.28	60	Marcellus
6	11/28/2022	11708	11538.6	60	Marcellus
7	11/28/2022	11502.32	11332.92	60	Marcellus
8	11/28/2022	11296.64	11127.24	60	Marcellus
9	11/28/2022	11090.96	10921.56	60	Marcellus
10	11/28/2022	10885.28	10715.88	60	Marcellus
11	11/29/2022	10679.6	10510.2	60	Marcellus
12	11/29/2022	10473.92	10304.52	60	Marcellus
13	11/29/2022	10268.24	10098.84	60	Marcellus
14	11/29/2022	10062.56	9893.16	60	Marcellus
15	11/29/2022	9856.88	9687.48	60	Marcellus
16	11/30/2022	9651.2	9481.8	60	Marcellus
17	11/30/2022	9445.52	9276.12	60	Marcellus
18	11/30/2022	9239.84	9070.44	60	Marcellus
19	11/30/2022	9034.16	8864.76	60	Marcellus
20	11/30/2022	8828.48	8659.08	60	Marcellus
21	12/1/2022	8622.8	8453.4	60	Marcellus
22	12/1/2022	8417.12	8247.72	60	Marcellus
23	12/1/2022	8211.44	8042.04	60	Marcellus
24	12/1/2022	8005.76	7836.36	60	Marcellus
25	12/1/2022	7800.08	7630.68	60	Marcellus
26	12/2/2022	7594.4	7425	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	11/26/2022	80.6	8202	7507	4128	172620	244409	N/A
2	11/27/2022	96.3	8206	5103	3839	417610	353635	N/A
3	11/27/2022	92.8	7942	3622	4462	416210	345025	N/A
4	11/27/2022	96.2	8280	2043	4617	417610	323678	N/A
5	11/27/2022	96.5	8171.95	6118.04	3492.979	415650	306537	N/A
6	11/28/2022	96.4	8272.078	6014.57	3526.365	408510	294556	N/A
7	11/28/2022	96.5	8273.942	5936.1	3732.084	414610	298196	N/A
8	11/28/2022	97.5	8054	5251	4014	413650	371344	N/A
9	11/28/2022	97.1	7966	2019	3616	413290	294599	N/A
10	11/28/2022	96.7	8120.375	5910.13	3557.539	414590	290561	N/A
11	11/29/2022	97.5	7798.723	5870.43	4058.785	416790	295074	N/A
12	11/29/2022	97.0	7852.106	6278.23	3449.698	412230	358980	N/A
13	11/29/2022	97.7	7744.029	5407.02	3652.9	411880	297776	N/A
14	11/29/2022	96.6	7625	5639	3666	410840	285263	N/A
15	11/29/2022	96.8	7692.962	5720.45	3326.823	414608	288330	N/A
16	11/30/2022	97.2	7619.215	5829.81	3482.54	417840	290946	N/A
17	11/30/2022	97.6	7605.21	5845.53	3415.108	419000	288264	N/A
18	11/30/2022	96.9	7534.954	5715.48	3333.329	420980	294146	N/A
19	11/30/2022	95.4	7541.077	5986.87	3296.898	417510	288655	N/A
20	11/30/2022	97.3	7415	5689	3398	419870	290214	N/A
21	12/1/2022	95.9	7427	6028	3478	415680	290066	N/A
22	12/1/2022	96.2	7268.167	5999.69	3159.7	411920	286348	N/A
23	12/1/2022	96.7	7405	6080	3446	417340	289813	N/A
24	12/1/2022	95.8	7161.838	5947.39	3242.474	421420	289130	N/A
25	12/1/2022	97.3	7087	6059	3461	418660	288272	N/A
26	12/2/2022	97.8	7338	6508	3415	422190	287800	N/A
	<b>AVERAGE</b>	<b>96</b>	<b>7,754</b>	<b>5,543</b>	<b>3,626</b>	<b>10,573,108</b>	<b>7,831,617</b>	<b>TOTAL</b>

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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, tr coal	154	304	154	304
Shaley Siltstone	304	424	304	424
Sandy Siltstone	424	664	424	664
Shaley Siltstone, tr coal	544	754	544	754
Shaley Siltstone	664	754	664	754
Shaley Siltstone, tr coal	754	814	754	814
Shaley Siltstone, tr SS	814	934	814	934
Sandy Shale w/ coal	934	1,054	934	1,054
Sandy Shale w/ tr coal	1,054	1,234	1,054	1,234
Shaley Sandstone w/ coal	1,234	1,324	1,234	1,324
Silty Sandstone, tr shale	1,324	1,594	1,324	1,594
Silty Sandstone w/ shale	1,594	1,684	1,594	1,684
Shaly Sandstone w/ tr siltstone	1,684	1,744	1,684	1,744
Silty Sandstone w/ tr coal	1,744	1,804	1,744	1,804
Silty Sandstone, tr shale	1,804	1,923	1,804	2,039
Big Lime	1,949	2,554	2,039	2,724
Fifty Foot Sandstone	2,554	2,612	2,698	2,788
Gordon	2,612	2,847	2,762	3,047
Fifth Sandstone	2,847	3,047	3,021	3,266
Bayard	3,047	3,718	3,240	3,997
Speechley	3,718	3,962	3,971	4,265
Balltown	3,962	4,468	4,239	4,815
Bradford	4,468	4,917	4,789	5,308
Benson	4,917	5,188	5,282	5,608
Alexander	5,188	6,400	5,582	6,974
Sycamore	6,241	6,374	6,778	6,948
Middlesex	6,374	6,503	6,948	7,165
Burkett	6,503	6,532	7,165	7,235
Tully	6,532	6,575	7,235	7,377
Marcellus	6,575	NA	7,377	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:	11/26/2022
Job End Date:	12/1/2022
State:	West Virginia
County:	Doddridge
API Number:	47-017-06928-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Conifer 1H
Latitude:	39.25332000
Longitude:	-80.79955000
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,702
Total Base Water Volume (gal):	7,998,755
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
Fresh Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.12919	Density = 8.34
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.15368	



Chemstream StimSTREAM FR 9750	Chemstream Oilfield Services	Friction Reducer					
				Listed Below			
LEGEND(TM) LD-7750W	MultiChem	Scale Control					
				Listed Below			
MC B-8614A	MultiChem	Biocide					
				Listed Below			
HYDROCHLORI C ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
Chemstream StimSTREAM FR 9800	Chemstream, Inc.	Friction Reducer					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			

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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	13.65103	
			Hydrochloric acid	7647-01-0	30.00000	0.04058	
			Distillates (petroleum), hydrotreated light	64742-47-8	25.00000	0.01318	
			Guar gum	9000-30-0	100.00000	0.01293	
			Methanol	67-56-1	100.00000	0.00737	
			Alcohols, C11-14-iso, C-13-rich, ethoxylated	78330-21-9	5.00000	0.00264	
			Glutaraldehyde	111-30-8	30.00000	0.00255	
			Sodium chloride	7647-14-5	5.00000	0.00059	
			Phosphoric Acid Salt	Proprietary	5.00000	0.00059	
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00043	
			Ammonium persulfate	7727-54-0	100.00000	0.00023	
			Ethanol	64-17-5	1.00000	0.00009	
			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	0.00007	
			Propargyl alcohol	107-19-7	5.00000	0.00001	
			Hexadecene	629-73-2	5.00000	0.00001	
			Ethoxylated alcohols	Proprietary	5.00000	0.00001	
			Formaldehyde	50-00-0	0.10000	0.00001	
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000	
			Butene, homopolymer	9003-29-6	25.00000		
			Alkanes, C16-20-iso-	Proprietary	25.00000		

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			Ethoxylated alcohols (C12-16)	68213-23-0	3.00000		
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\* 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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