

WR-35
Rev. 8/23/13

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

API 47-017-06848 County Doddridge District West Union
 Quad West Union 7.5' Pad Name Strickling Pad Field/Pool Name -----
 Farm name John Paul Strickling, et al Well Number Buffet 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 4353669m Easting 518634m
 Landing Point of Curve Northing 4351577m Easting 518300m
 Bottom Hole Northing 4350760m Easting 519397m

Elevation (ft) 1065' 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 7/13/2017 Date drilling commenced 9/5/2017 Date drilling ceased 4/5/2018
 Date completion activities began 7/21/2018 Date completion activities ceased 10/7/2018
 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 None Identified Open mine(s) (Y/N) depths No
 Salt water depth(s) ft None Identified Void(s) encountered (Y/N) depths No
 Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No
 Is coal being mined in area (Y/N) No

Reviewed by:

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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"	95'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	362'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2560'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16930'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7074'		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	284 sx	15.6	1.18	335	0'	8 Hrs.
Surface	Class A	325 sx	15.6	1.2	390	0'	8 Hrs.
Coal							
Intermediate 1	Class A	890 sx	15.6	1.18	1050	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	716sx (Lead) 1618sx (Tail)	14(Lead), 15.2 (Tail)	1.45 (Lead), 1.83 (Tail)	3999	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16930' MD, 6758' TVD (BHL), 6787' (Deepest Point Drilled) Loggers TD (ft) 16930' MD

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

Plug back procedure N/A

Kick off depth (ft) 6509.5'

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

API 47- 017 - 06848 Farm name John Paul Strickling, et al Well number Buffet Unit 2H

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								

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6658' (TOP) TVD	7211' (TOP) MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3600 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 9711.58 mcfpd Oil 131.7 bpd NGL --- bpd Water 487.05 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP		BOTTOM		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ 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 Frontier Drilling LLC
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company Nine Energy Service
Address 125 Museum Rd City Washington State PA Zip 15301

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

Stimulating Company US Well Services
Address 533 Industrial Park Road City Lane Jew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Karin Cox Telephone 303-357-6820
Signature  Title Permitting Agent Date 2/11/2019

API 47-017-06848 Farm Name John Paul Strickling, et al Well Number Buffet Unit 2H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	7/21/2018	16781.4	16808	48	Marcellus
2	7/22/2018	16578.738	16749.623	48	Marcellus
3	7/22/2018	16376.076	16546.961	48	Marcellus
4	7/22/2018	16173.414	16344.299	48	Marcellus
5	7/23/2018	15970.752	16141.637	48	Marcellus
6	7/23/2018	15768.09	15938.975	48	Marcellus
7	7/23/2018	15565.428	15736.313	48	Marcellus
8	7/23/2018	15362.766	15533.651	48	Marcellus
9	7/24/2018	15160.104	15330.989	48	Marcellus
10	7/24/2018	14957.442	15128.327	48	Marcellus
11	7/25/2018	14754.78	14925.665	48	Marcellus
12	7/25/2018	14552.118	14723.003	48	Marcellus
13	7/25/2018	14349.456	14520.341	48	Marcellus
14	7/26/2018	14146.794	14317.679	48	Marcellus
15	7/26/2018	13944.132	14115.017	48	Marcellus
16	7/27/2018	13741.47	13912.355	48	Marcellus
17	7/27/2018	13538.808	13709.693	48	Marcellus
18	7/27/2018	13336.146	13507.031	48	Marcellus
19	7/27/2018	13133.484	13304.369	48	Marcellus
20	7/28/2018	12930.822	13101.707	48	Marcellus
21	7/28/2018	12728.16	12899.045	48	Marcellus
22	7/28/2018	12525.498	12696.383	48	Marcellus
23	7/29/2018	12322.836	12493.721	48	Marcellus
24	7/29/2018	12120.174	12291.059	48	Marcellus
25	7/29/2018	11917.512	12088.397	48	Marcellus
26	7/29/2018	11714.85	11885.735	48	Marcellus
27	7/30/2018	11512.188	11683.073	48	Marcellus
28	7/30/2018	11309.526	11480.411	48	Marcellus
29	7/30/2018	11106.864	11277.749	48	Marcellus
30	7/31/2018	10904.202	11075.087	48	Marcellus
31	7/31/2018	10701.54	10872.425	48	Marcellus
32	7/31/2018	10498.878	10669.763	48	Marcellus
33	8/1/2018	10296.216	10467.101	48	Marcellus
34	8/1/2018	10093.554	10264.439	48	Marcellus
35	8/1/2018	9890.892	10061.777	48	Marcellus
36	8/1/2018	9688.23	9859.115	48	Marcellus
37	8/2/2018	9485.568	9656.453	48	Marcellus
38	8/2/2018	9282.906	9453.791	48	Marcellus
39	8/2/2018	9080.244	9251.129	48	Marcellus
40	8/2/2018	8877.582	9048.467	48	Marcellus
41	8/3/2018	8674.92	8845.805	48	Marcellus
42	8/3/2018	8472.258	8643.143	48	Marcellus
43	8/3/2018	8269.596	8440.481	48	Marcellus
44	8/4/2018	8066.934	8237.819	48	Marcellus
45	8/4/2018	7864.272	8035.157	48	Marcellus
46	8/4/2018	7661.61	7832.495	48	Marcellus
47	8/4/2018	7458.948	7629.833	48	Marcellus
48	8/5/2018	7256.286	7427.171	48	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	7/21/2018	72.3	7967.7	6107	3716	275370	7471	N/A
2	7/22/2018	72.0029	8079.484	5586	3921	406900	8200	N/A
3	7/22/2018	76.8765	8189.962	5513	4128	407400	8200	N/A
4	7/22/2018	73.9	8066.8	5919	3906	409100	8159	N/A
5	7/23/2018	74.1	7934.2	5857	3949	408690	8174	N/A
6	7/23/2018	75.8747	8095.866	5922	3922	408950	9075	N/A
7	7/23/2018	74.3529	8054.195	6171	5075	409070	8100	N/A
8	7/23/2018	76.8	8244.6	5713	4161	408690	8044	N/A
9	7/24/2018	77.5186	7848.318	5767	4829	408750	8124	N/A
10	7/24/2018	74.8	8147.3	6340	4308	409330	8336	N/A
11	7/25/2018	76.0401	8113.963	6551	4042	408600	8125	N/A
12	7/25/2018	77.8079	7998.782	6726	4365	407100	8070	N/A
13	7/25/2018	77.5	8222.5	6108	4419	408670	8004	N/A
14	7/26/2018	79.1	7932.3	5846	4039	406360	7954	N/A
15	7/26/2018	77.6106	8002.714	6101	4037	405300	8036	N/A
16	7/27/2018	75.7	7974.5	5809	4040	408530	9687	N/A
17	7/27/2018	78.7119	7982.912	5524	5068	408220	8254	N/A
18	7/27/2018	79.0838	7822.502	5849	4711	408200	8064	N/A
19	7/27/2018	79	7872.9	5769	4190	408620	7949	N/A
20	7/28/2018	79.3	7911.2	5846	4069	408240	7936	N/A
21	7/28/2018	77.9246	7745.959	5717	4207	408670	8068	N/A
22	7/28/2018	78.8	7891.9	5955	5295	408660	7950	N/A
23	7/29/2018	78.8	7812.3	5877	4409	408910	7984	N/A
24	7/29/2018	79.409	7710.172	5793	4562	406770	8021	N/A
25	7/29/2018	78.7349	7855.314	5705	4936	409130	8376	N/A
26	7/29/2018	78.5	7874.4	5677	4334	409090	7928	N/A
27	7/30/2018	79.764	7813.319	5584	4281	406100	8012	N/A
28	7/30/2018	78.9495	7769.133	5902	4672	409100	7980	N/A
29	7/30/2018	79.3566	7782.149	5628	4171	409400	7846	N/A
30	7/31/2018	79.5581	7739.5	6107	4214	408800	7835	N/A
31	7/31/2018	78.9655	7685.118	5837	4519	408100	7940	N/A
32	7/31/2018	78.2186	7595.665	6067	4930	408200	9617	N/A
33	8/1/2018	79.5632	7598.042	6036	4945	405700	7872	N/A
34	8/1/2018	79.5112	7541.615	5907	4461	407500	7800	N/A
35	8/1/2018	78.6216	7768.546	6636	4166	407300	7812	N/A
36	8/1/2018	78.9906	7753.082	6734	4131	408000	7952	N/A
37	8/2/2018	79.4413	7704.879	6136	5033	408900	8184	N/A
38	8/2/2018	79.1436	7879.638	5705	4199	361400	7559	N/A
39	8/2/2018	79.3551	7756.851	5748	4052	456700	8457	N/A
40	8/2/2018	78.6783	7578.548	5921	4692	407500	7833	N/A
41	8/3/2018	78.7679	7397.726	5827	5524	407400	7870	N/A
42	8/3/2018	79.1053	7770.926	6407	4357	408300	7756	N/A
43	8/3/2018	79.2914	7199.69	5593	4116	408800	7879	N/A
44	8/4/2018	79.8535	7148.819	5814	4291	408500	7936	N/A
45	8/4/2018	79.8085	7548.831	6363	4404	408860	7693	N/A
46	8/4/2018	79.6859	7293.169	5709	4084	408500	7690	N/A
47	8/4/2018	79.5909	7510.269	5699	4286	406100	7726	N/A
48	8/5/2018	79.3571	6924.718	6254	4339	408600	7706	N/A
AVG=		78	7,794	5,945	4,386	19,459,080	387,244	TOTAL

API 47-017-06848 Farm Name John Paul Strickling, et al Well Number Buffett Unit 2H				
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	0	187	0	187
Sandstone tr coal	est 187	267	est 187	267
Sandy shale	est 267	807	est 267	807
Calcareous Shale	est 807	1,187	est 807	1,187
Shale tr coal	est 1187	1,207	est 1187	1,207
Sandy Shale	est 1207	1,527	est 1207	1,527
Sandstone	est 1527	1,567	est 1527	1,567
Silty shale	est 1567	1,667	est 1567	1,667
Sandstone	est 1667	1,787	est 1667	1,787
Sandy shale	est 1787	1,940	est 1787	1,942
Big Lime	1,940	2,501	1,942	2,503
Fifty Foot Sandstone	2,501	2,726	2,503	2,729
Gordon	2,726	2,932	2,729	2,936
Fifth Sandstone	2,932	2,992	2,936	2,996
Bayard	2,992	3,782	2,996	3,813
Speechley	3,782	4,071	3,813	4,130
Balltown	4,071	4,565	4,130	4,673
Bradford	4,565	5,010	4,673	5,160
Benson	5,010	5,279	5,160	5,455
Alexander	5,279	6,272	5,455	6,564
Sycamore	6,272	6,444	6,564	6,796
Middlesex	6,444	6,579	6,796	7,034
Burkett	6,579	6,611	7,034	7,101
Tully	6,611	6,658	7,101	7,211
Marcellus	6,658	N/A	7,211	N/A

*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:	7/21/2018
Job End Date:	8/5/2018
State:	West Virginia
County:	Doddridge
API Number:	47-017-06848-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Buffett 2H
Latitude:	39.33216100
Longitude:	-80.78396700
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,787
Total Base Water Volume (gal):	16,265,088
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
Water	Antero Resources	Carrier/Base Fluid	Water	7732-18-5	100.00000	87.28009	
Sand	J.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	12.52033	
HCL Acid (12.6%-17.5%)	J.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.40000	0.12885	
WFRA-405	J.S. Well Services, LLC	Friction Reducer	Hydrogen Chloride	7647-01-0	17.50000	0.02996	
			2-Propanoic acid, polymer with propanamide	29003-06-9	30.00000	0.01438	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01158	
LGC-15	J.S. Well Services, LLC	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.00312	
			Petroleum Distillates	64742-47-8	60.00000	0.00295	
			Suspending agent (solid)	14808-60-7	3.00000	0.00048	
			Surfactant	68439-51-0	3.00000	0.00019	

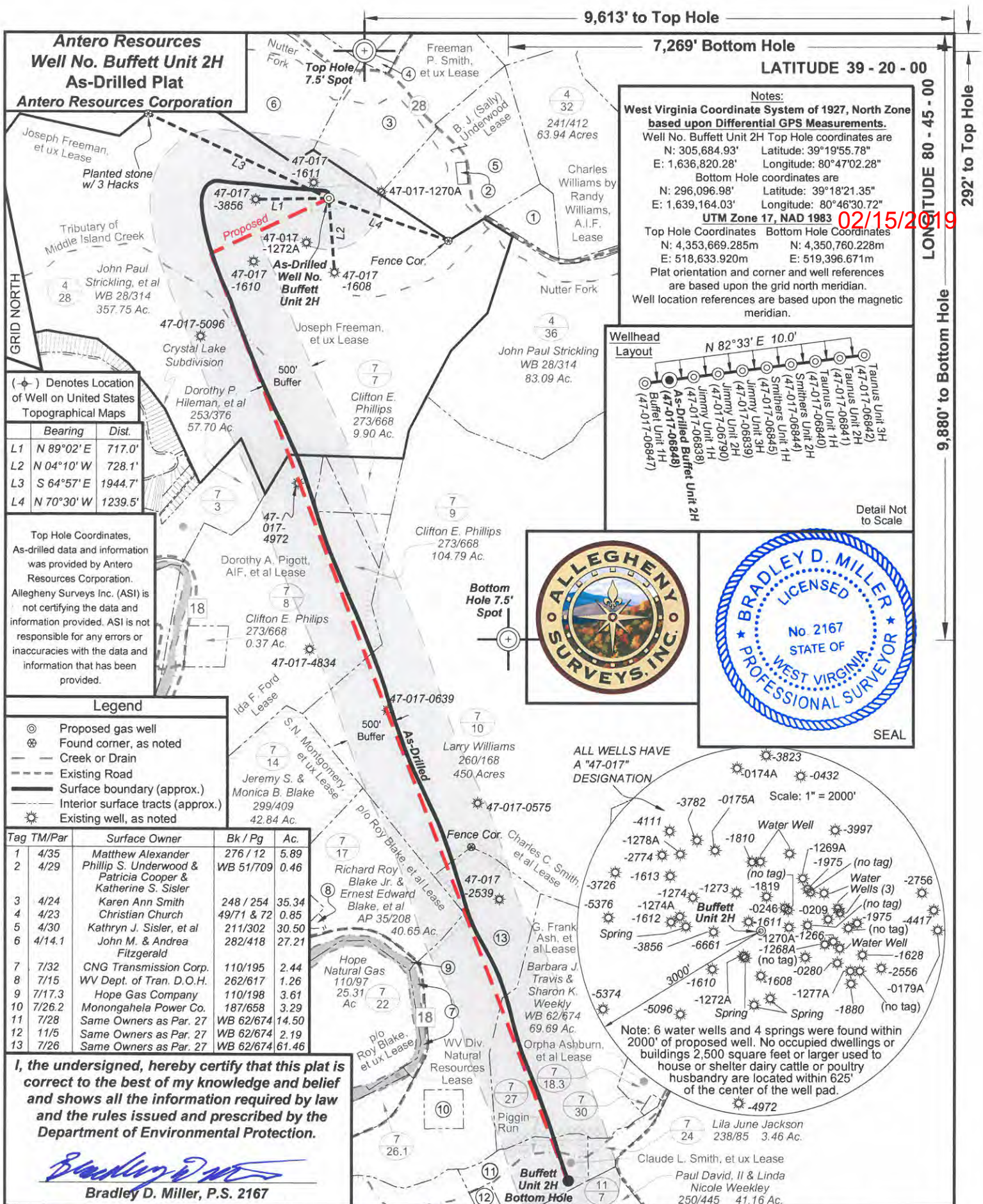
Bioclear 2000	U.S. Well Services, LLC	Anti-Bacterial Agent							
			2,2-dibromo-3-nitropropionamide	10222-01-2	20.00000	0.00419			
			Deionized Water	7732-18-5	28.00000	0.00240			
SI-1200s	U.S. Well Services, LLC	Scale Inhibitor							
			Proprietary Scale Inhibitor	Proprietary	10.00000	0.00130			
AP One	U.S. Well Services, LLC	Gel Breakers							
			Ammonium Persulfate	7727-54-0	100.00000	0.00011			
AI-303	U.S. Well Services, LLC	Acid Corrosion Inhibitors							
			Ethylene glycol	107-21-1	40.00000	0.00004			
			Formic acid	64-18-6	20.00000	0.00002			
			Cinnamaldehyde	104-55-2	20.00000	0.00002			
			Butyl cellosolve	111-76-2	20.00000	0.00001			
			Polyether	60828-78-6	10.00000	0.00001			
			Acetophenone, thiourea, formaldehyde polymer	68527-49-1	5.00000	0.00000			

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

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)



FILE NO: 51-30-WU-14
DRAWING NO: Buffett 2H As-Drilled Plat
SCALE: 1" = 1200'
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: December 28 2018
OPERATOR'S WELL NO. Buffett Unit 2H
API WELL NO. 47 - 017 - 06848
STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built - 1065' WATERSHED: Headwaters Middle Island Creek QUADRANGLE: West Union
DISTRICT: West Union COUNTY: Doddridge

SURFACE OWNER: John Paul Strickling, et al Claude L. Smith, et ux G. Frank Ash, et al; ACREAGE: 357.75 90; 600
ROYALTY OWNER: Charles C. Smith, et al; Joseph Freeman, et ux; Ida F. Ford LEASE NO: ACREAGE: 140;114; 450

PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled 6,758' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 16,930' 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