

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

API 47-085-10311 County Ritchie District Clay
Quad Ellenboro 7.5' Pad Name Bachelor Pad Field/Pool Name -----
Farm name Marion R. Bachelor Well Number Raines 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 4351346m Easting 498702m
Landing Point of Curve Northing 4351183.80m Easting 584719.25m
Bottom Hole Northing 4348440m Easting 500272m

Elevation (ft) 1193' 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 3/23/2017 Date drilling commenced 5/12/2017 Date drilling ceased 10/18/2017
Date completion activities began 12/26/2017 Date completion activities ceased 2/27/2018
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 202', 402' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1355' 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
Michael Gaff 9/5/18

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API 47-085 - 10311 Farm name Marion R. Bachelor Well number Raines 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	24"	20"	102'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	624'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2570'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16791'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6588'		4.7#, N-80		
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	204 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	530 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	860 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	426 sx (Lead) 1450 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.44 (Lead), 1.87 (Tail)	3774	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16804' MD, 6438' TVD (BHL), 6438' (Deepest Point Drilled) Loggers TD (ft) 16804' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5927

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 _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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WERE TRACERS USED Yes No TYPE OF TRACER(S) USED N/A

API 47- 085 - 10311 Farm name Marion R. Bachelor Well number Raines Unit 1H

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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EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	1/10/2018	16598	16691	60	Marcellus
2	1/15/2018	16401	16567	60	Marcellus
3	1/15/2018	16203	16370	60	Marcellus
4	1/16/2018	16005	16172	60	Marcellus
5	1/18/2018	15807	15974	60	Marcellus
6	1/18/2018	15609	15776	60	Marcellus
7	1/19/2018	15411	15578	60	Marcellus
8	1/19/2018	15213	15380	60	Marcellus
9	1/20/2018	15015	15182	60	Marcellus
10	1/21/2018	14818	14984	60	Marcellus
11	1/21/2018	14620	14787	60	Marcellus
12	1/21/2018	14422	14589	60	Marcellus
13	1/22/2018	14224	14391	60	Marcellus
14	1/23/2018	14026	14193	60	Marcellus
15	1/23/2018	13828	13995	60	Marcellus
16	1/24/2018	13630	13797	60	Marcellus
17	1/24/2018	13432	13599	60	Marcellus
18	1/25/2018	13235	13401	60	Marcellus
19	1/25/2018	13037	13204	60	Marcellus
20	1/26/2018	12839	13006	60	Marcellus
21	1/27/2018	12641	12808	60	Marcellus
22	1/27/2018	12443	12610	60	Marcellus
23	1/27/2018	12245	12412	60	Marcellus
24	1/28/2018	12047	12214	60	Marcellus
25	1/28/2018	11849	12016	60	Marcellus
26	1/29/2018	11652	11818	60	Marcellus
27	1/30/2018	11454	11621	60	Marcellus
28	1/30/2018	11256	11423	60	Marcellus
29	1/31/2018	11058	11225	60	Marcellus
30	2/1/2018	10860	11027	60	Marcellus
31	2/2/2018	10662	10829	60	Marcellus
32	2/3/2018	10464	10631	60	Marcellus
33	2/5/2018	10266	10433	60	Marcellus
34	2/5/2018	10069	10235	60	Marcellus
35	2/5/2018	9871	10038	60	Marcellus
36	2/6/2018	9673	9840	60	Marcellus
37	2/6/2018	9475	9642	60	Marcellus
38	2/7/2018	9277	9444	60	Marcellus
39	2/7/2018	9079	9246	60	Marcellus
40	2/8/2018	8881	9048	60	Marcellus
41	2/8/2018	8683	8850	60	Marcellus
42	2/8/2018	8486	8652	60	Marcellus
43	2/9/2018	8288	8455	60	Marcellus
44	2/10/2018	8090	8257	60	Marcellus
45	2/9/2018	7892	8059	60	Marcellus
46	2/10/2018	7694	7861	60	Marcellus
47	2/10/2018	7496	7663	60	Marcellus
48	2/11/2018	7298	7465	60	Marcellus
49	2/11/2018	7100	7267	60	Marcellus
50	2/11/2018	6903	7069	60	Marcellus
51	2/11/2018	6705	6872	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	1/10/2018	77.8	7486	5623	3813	310,620	7257	N/A
2	1/15/2018	76.6	7260	5065	3318	493,980	10313	N/A
3	1/15/2018	70	7049	5891	3268	498,640	11393	N/A
4	1/16/2018	73	7215	5339	5203	494,920	10429	N/A
5	1/18/2018	69	7330	6904	3216	507,460	10781	N/A
6	1/18/2018	71	7152	5785	3047	497,795	10756	N/A
7	1/19/2018	74	7118	40	3944	497,960	10596	N/A
8	1/19/2018	74	7499	4826	3581	497,995	11168	N/A
9	1/20/2018	53	7928	5987	4878	390,755	12062	N/A
10	1/21/2018	64	7756	7042	5062	511,600	12930	N/A
11	1/21/2018	72	7268	5712	4854	468,320	12998	N/A
12	1/21/2018	72	7352	9323	5796	504,300	10488	N/A
13	1/22/2018	75	7311	7594	4801	499,900	10508	N/A
14	1/23/2018	75	7089	5341	3373	488,740	10519	N/A
15	1/23/2018	75.3	7300	4775	3950	502,940	10770	N/A
16	1/24/2018	76	7401	5880	5069	498,155	10386	N/A
17	1/24/2018	73.1	7128	5074	3373	512,780	10658	N/A
18	1/25/2018	75	7069	4235	4389	502,300	10595	N/A
19	1/25/2018	76	7060	4945	6746	503,860	10531	N/A
20	1/26/2018	74	7309	5326	3762	503,440	11065	N/A
21	1/27/2018	72.8	7026	5205	3748	491,080	10609	N/A
22	1/27/2018	76	6830	5654	5000	498,120	10517	N/A
23	1/27/2018	76.3	6857	5665	3768	483,900	10788	N/A
24	1/28/2018	76.8	6865	5387	4526	500,380	11368	N/A
25	1/28/2018	77	6938	6032	3359	498,775	10652	N/A
26	1/29/2018	76	6753	7289	4664	500,240	10705	N/A
27	1/30/2018	75.5	6911	5027	3766	497,920	12268	N/A
28	1/30/2018	79.2	7113	5633	3870	497,140	10465	N/A
29	1/31/2018	77	7057	4566	3244	498,770	11370	N/A
30	2/1/2018	80	7146	4706	2953	496,000	10471	N/A
31	2/2/2018	80	6642	4693	2962	497,795	10312	N/A
32	2/3/2018	79.8	6876	5107	3277	498,040	10306	N/A
33	2/5/2018	79.1	6941	4753	3454	496,160	11672	N/A
34	2/5/2018	80.4	7047	5640	3241	498,820	10333	N/A
35	2/5/2018	79.8	6915	5684	3403	499,880	10293	N/A
36	2/6/2018	78.9	6668	5301	2946	501,220	10492	N/A
37	2/6/2018	76.1	6303	5993	3004	499,660	11582	N/A
38	2/7/2018	77.6	6332	5323	3052	498,015	10268	N/A
39	2/7/2018	77	6300	5568	2877	505,540	10456	N/A
40	2/8/2018	77.8	6299	6084	3045	497,799	10374	N/A
41	2/8/2018	78.1	6610	5976	2795	500,920	10095	N/A
42	2/8/2018	69	6956	5040	3714	498,080	12755	N/A
43	2/9/2018	52.6	7079	6041	3485	507,620	14260	N/A
44	2/10/2018	71.5	6548	6373	4018	505,140	10220	N/A
45	2/9/2018	78.2	6876	5472	4903	499,240	11371	N/A
46	2/10/2018	69.3	6471	5765	3967	498,200	10305	N/A
47	2/10/2018	76.5	6582	5375	3447	500,000	10232	N/A
48	2/11/2018	77.8	7004	5744	3547	497,920	13138	N/A
49	2/11/2018	71.1	6396	5838	3566	498,320	11283	N/A
50	2/11/2018	79.6	6167	6226	3020	500,080	10007	N/A
51	2/11/2018	77.5	5617	6848	2991	497,900	10211	N/A
AVG=		74.5	6,945	5,583	3,825	25,145,134	555,381	TOTAL

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
Fresh Water	227'	N/A	227'	N/A
Shale	85	305	85	305
Sandstone	305	485	305	485
Siltstone	485	965	485	965
Shale	965	1,475	965	1,475
Sandstone	1,475	1,685	1,475	1,685
Sandstone	1,685	1,825	1,685	1,825
Sandstone	1,825	1,785	1,825	1,785
Sandstone	1,785	1,835	1,785	1,835
Sandstone	1,835	2,015	1,835	2,015
Shale	2,015	2,022	2,015	2,047
Big Lime	2,022	2,611	2,047	2,240
Gantz	2,611	2,919	2,240	2,950
Fifty Foot Sandstone	2,919	3,036	2,950	3,071
Gordon	3,036	3,484	3,071	3,534
Fifth Sandstone	3,484	3,550	3,534	3,602
Bayard	3,550	3,998	3,602	4,063
Speechley	3,998	4,270	4,063	4,342
Balltown	4,270	4,694	4,342	4,781
Bradford	4,694	5,031	4,781	5,131
Benson	5,031	5,258	5,131	5,365
Alexander	5,258	5,524	5,365	5,665
Elk	5,524	5,758	5,665	5,907
Rhinestreet	5,758	6,116	5,907	6,316
Sycamore	6,116	6,205	6,316	6,447
Middlesex	6,205	6,298	6,447	6,612
Burkett	6,298	6,343	6,612	6,685
Marcellus (Tully-Not Present)	6,343	0	6,685	0

*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:	1/10/2018
Job End Date:	2/11/2018
State:	West Virginia
County:	Ritchie
API Number:	47-085-10311-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Raines 1H
Latitude:	39.31155600
Longitude:	-81.01508800
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,463
Total Base Water Volume (gal):	23,336,334
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
Water	Ascent	Carrier/Base Fluid	Water	7732-18-5	100.00000	88.30940	None
			Crystalline silica: Quartz (SiO2)	14808-60-7	100.00000	11.39833	None
Sand (Proppant)	Keane	Proppant	Guar gum	9000-30-0	55.00000	0.03956	None
			Distillates (petroleum), hydrotreated light	64742-47-8	55.00000	0.03956	None
KWG-111LS	Keane	Gel	Water	7732-18-5	60.00000	0.04006	None
			Distillates (petroleum), hydrotreated light	64742-47-8	20.00000	0.01335	None
KFR-16FW	Keane	Friction Reducer	ammonium chloride	12125-02-9	1.50000	0.00100	None
			oleic acid diethanolamide	93-83-4	1.50000	0.00100	None
Hydrochloric Acid (15%)	Keane	Acidizing	alcohols, C12-16, ethoxylated	68551-12-2	1.00000	0.00067	None
			Hydrochloric Acid	7647-01-0	15.00000	0.01931	None
MBC-516	Keane	Biocide					

			Water	7732-18-5	56.70000	0.00545	None
			Glutaral	111-30-8	26.70000	0.00257	None
			didecyltrimethylammonium chloride	7173-51-5	8.00000	0.00077	None
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00051	None
			ethonal	64-17-5	2.80000	0.00027	None
KSI-19	Keane	Scale Inhibitor					
			Methanol	67-56-1	30.00000	0.00404	None
KWBO-2	Keane	Breaker					
			Sodium persulfate	7775-27-1	99.00000	0.00134	None
KAI-12	Keane	Acid Inhibitor					
			Ethylene glycol	107-21-1	40.00000	0.00004	None
			dipropylene glycol, monomethyl ether	34590-94-8	20.00000	0.00002	None
			formic acid	64-18-6	10.00000	0.00001	None
			Cinnamaldehyde	104-55-2	10.00000	0.00001	None
			Ethoxylated alcohol	68131-39-5	10.00000	0.00001	None
			Tar bases, quinoline derivs., benzyl chloride-quaternized	72480-70-7	10.00000	0.00001	None
			isopropyl alcohol	67-63-0	5.00000	0.00001	None
KFEAC-30	Keane	Iron Control					
			Citric acid	77-92-9	30.00000	0.00009	None
			Acetic acid	64-19-7	5.00000	0.00002	None
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.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Distillates (petroleum), hydrotreated light	64742-47-8	55.00000	0.03956	
			Distillates (petroleum), hydrotreated light	64742-47-8	20.00000	0.01335	
			Glutaral	111-30-8	26.70000	0.00257	
			oleic acid diethanolamide	93-83-4	1.50000	0.00100	
			ammonium chloride	12125-02-9	1.50000	0.00100	
			didecyltrimethylammonium chloride	7173-51-5	8.00000	0.00077	
			alcohols, C12-16, ethoxylated	68551-12-2	1.00000	0.00067	
			quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.30000	0.00051	
			ethonal	64-17-5	2.80000	0.00027	
			Citric acid	77-92-9	30.00000	0.00009	
			dipropylene glycol, monomethyl ether	34590-94-8	20.00000	0.00002	
			Ethoxylated alcohol	68131-39-5	10.00000	0.00001	
			Tar bases, quinoline derivs., benzyl chloride-quaternized	72480-70-7	10.00000	0.00001	
			formic acid	64-18-6	10.00000	0.00001	
			Cinnamaldehyde	104-55-2	10.00000	0.00001	

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			soproyl alcohol	67-63-0		5.00000	0.00001
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* 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)

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LATITUDE 39°20'00"

4,326'

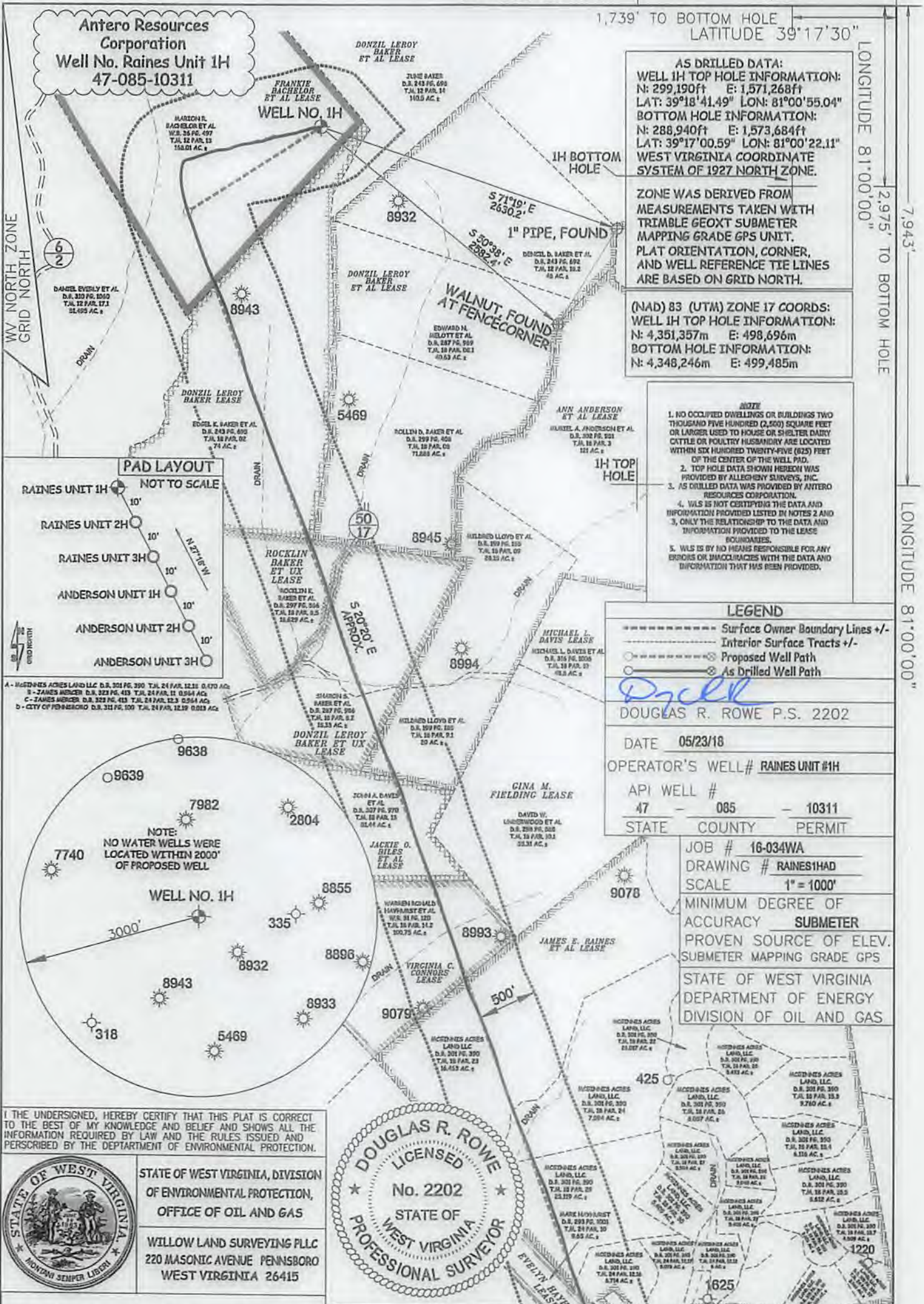
1,739' TO BOTTOM HOLE

LATITUDE 39°17'30"

LONGITUDE 81°00'00"

7,943'

LONGITUDE 81°00'00"



AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
 N: 299,190ft E: 1,571,268ft
 LAT: 39°18'41.49" LON: 81°00'55.04"
BOTTOM HOLE INFORMATION:
 N: 288,940ft E: 1,573,684ft
 LAT: 39°17'00.59" LON: 81°00'22.11"
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: 4,351,357m E: 498,696m
BOTTOM HOLE INFORMATION:
 N: 4,348,246m E: 499,485m

- NOTE**
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAILY 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 ALLEGHENY SURVEYS, INC.
 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

Dyck
 DOUGLAS R. ROWE P.S. 2202

DATE 05/23/18

OPERATOR'S WELL# RAINES UNIT #1H

API WELL # 47 - 085 - 10311

STATE COUNTY PERMIT

JOB # 16-034WA

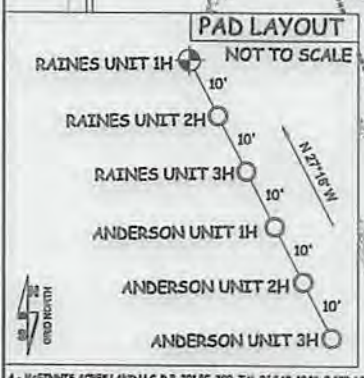
DRAWING # RAINES1HAD

SCALE 1" = 1000'

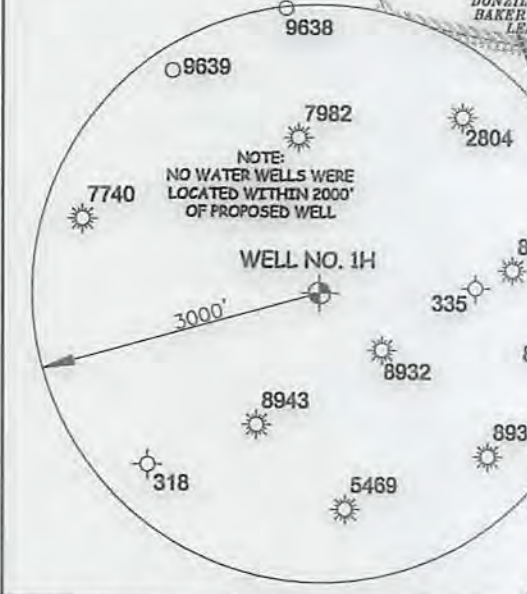
MINIMUM DEGREE OF ACCURACY SUBMETER

PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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



A - HUGHES ACRES LAND LLC D.S. 301 PG. 390 T.J. 24 PAR. 12.3 0.470 AC.
 B - JAMES MERGER D.S. 324 PG. 413 T.J. 24 PAR. 11 0.964 AC.
 C - JAMES MERGER D.S. 323 PG. 413 T.J. 24 PAR. 12.3 0.264 AC.
 D - CITY OF PENNSBORO D.S. 311 PG. 100 T.J. 24 PAR. 12.39 0.013 AC.

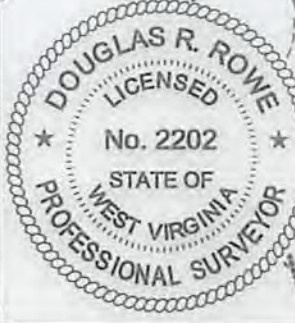


I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



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

WILLOW LAND SURVEYING PLLC
 220 MASONIC AVENUE PENNSBORO WEST VIRGINIA 26415



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

LOCATION: ELEVATION 1,193' AS BUILT WATERSHED NORTH FORK HUGHES RIVER

QUADRANGLE ELLENBORO 7.5' DISTRICT CLAY COUNTY RITCHIE

SURFACE OWNER MARION R. BACHELOR ET AL

OIL & GAS ROYALTY OWNER FRANKIE BACHELOR ET AL; DONZIL LEROY BAKER; ROCKLIN BAKER ET UX; DONZIL LEROY BAKER ET UX; ANN ANDERSON ET AL; JACKIE O. BILES ET AL; VIRGINIA C. CONNORS; JAMES E. RAINES ET AL; EVELYN HAYHURST

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 6,438' TVD 16,804' MD

WELL OPERATOR ANTERO RESOURCES CORPORATION DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM

ADDRESS 1615 WYNNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

FORM WW-6 DENVER, CO 80202

09/07/2018

LATITUDE 39°20'00"

4,326'

1,739' TO BOTTOM HOLE

LATITUDE 39°17'30"

LONGITUDE 81°00'00"

7,943'

LONGITUDE 81°00'00"

Antero Resources Corporation
Well No. Raines Unit 1H
47-085-10311

AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 299,190ft E: 1,571,268ft
LAT: 39°18'41.49" LON: 81°00'55.04"
BOTTOM HOLE INFORMATION:
N: 288,940ft E: 1,573,684ft
LAT: 39°17'00.59" LON: 81°00'22.11"
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: 4,351,357m E: 498,696m
BOTTOM HOLE INFORMATION:
N: 4,348,246m E: 499,485m

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 ALLEGHENY SURVEYS, INC.
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

DOUGLAS R. ROWE P.S. 2202

DATE 05/23/18

OPERATOR'S WELL# RAINES UNIT #1H

API WELL #

47 - 085 - 10311

STATE COUNTY PERMIT

JOB # 16-034WA

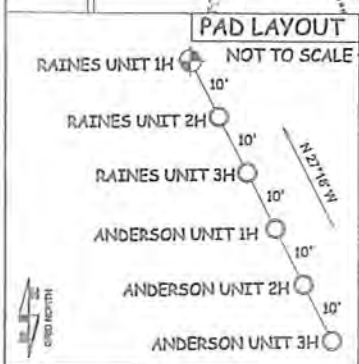
DRAWING # RAINES1HAD

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

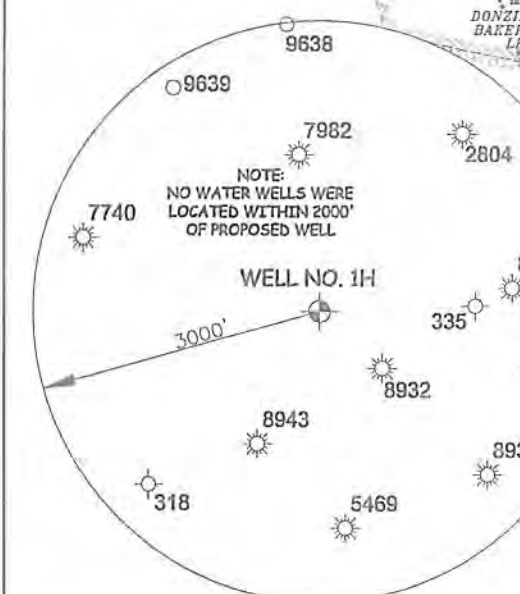


A - HUGHES ACRES LAND LLC D.R. 301 PG. 370 T.A. 24 PAR. 12.31 0.470 AC.

B - JAMES HAYHURST D.R. 323 PG. 413 T.A. 24 PAR. 11 0.514 AC.

C - JAMES HAYHURST D.R. 323 PG. 413 T.A. 24 PAR. 12.3 0.564 AC.

D - CITY OF PENNSBORO D.R. 311 PG. 100 T.A. 24 PAR. 12.31 0.015 AC.



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