

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

AUG 26 2017

West Virginia  
Department of Environmental Protection

API 47-095-02335 County Tyler District Centerville  
Quad Middlebourne 7.5' Pad Name Estlack Pad Field/Pool Name ---  
Farm name Edna Monroe Well Number Jujubee 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 4362767m Easting 510502m  
Landing Point of Curve Northing 4362562.978m Easting 510280.537m  
Bottom Hole Northing 4359520m Easting 511364m

Elevation (ft) 1142' 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 01/29/2016 Date drilling commenced 02/19/2016 Date drilling ceased 04/04/2016  
Date completion activities began 09/01/2016 Date completion activities ceased 12/06/2016  
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 46', 98' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 748', 1222' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 228', 1128', 1628' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

**APPROVED**

NAME: Sam M. Ka  
DATE: 9-19-17

Reviewed by:  
DMH

10/06/2017

API 47-095 - 02335 Farm name Edna Monroe Well number Jujubee 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"	72'	New	94#, H-40	N/A	Y
Surface	17- 1/2"	13- 3/8"	370'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2581'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	17752'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6807'		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 <sup>3</sup> /sks)	Volume (ft <sup>2</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	143 sx	15.6	1.18	169	0	8 Hrs.
Surface	Class A	455 sx	15.6	1.19	541	0	8 Hrs.
Coal							
Intermediate 1	Class A	1010 sx	15.6	1.18	1192	0	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	696 sx (Lead), 1704 sx (Tail)	14.5 (Lead), 15.2 (Tail)	1.33 (Lead), 1.83 (Tail)	4044	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17752' MD, 6645' TVD (BHL & Deepest point drilled) Loggers TD (ft) 17738' MD

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

Plug back procedure N/A

Kick off depth (ft) 6285'

\*\* This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Lucy Unit 1H API# 47-095-02276). Please reference the wireline logs submitted with Form WR-35 for the Lucy Unit 1H. A Cement Bond Log has been included with this submittal.

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- 095 - 02335 Farm name Edna Monroe Well number Jujubee Unit 1H

PRODUCING FORMATION(S)	DEPTHS	
<u>Marcellus</u>	<u>6546' (Top)</u> TVD	<u>6826' (Top)</u> MD
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 4100 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 13871 mcfpd Oil 214 bpd NGL --- bpd Water 930 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	<u>0</u>		<u>0</u>		
<b>* PLEASE SEE ATTACHED EXHIBIT 3</b>					

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling LLC  
Address 562 Spring Run Rd City Pennsboro State WV Zip 26415

Logging Company Allied Horizontal Wireline Services  
Address 381 Colonial Manor Rd City North Huntingdon State PA Zip 15642

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

Stimulating Company Halliburton  
Address 121 Champion Way Suite 200 City Canonsburg State PA Zip 15317

Please insert additional pages as applicable.

Completed by Samantha Klaas Telephone 303-357-6759  
Signature *Samantha Klaas* Title Permitting Agent Date 08/25/2017

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

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API 47-095-02335 Farm Name Edna Monroe Well Number Jujubee Unit 1H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/1/2016	17482	17650	60	Marcellus
2	9/2/2016	17282	17450	60	Marcellus
3	9/2/2016	17081	17250	60	Marcellus
4	9/3/2016	16881	17050	60	Marcellus
5	9/4/2016	16681	16850	60	Marcellus
6	9/4/2016	16481	16650	60	Marcellus
7	9/5/2016	16281	16450	60	Marcellus
8	9/5/2016	16081	16250	60	Marcellus
9	9/6/2016	15881	16050	60	Marcellus
10	9/7/2016	15681	15850	60	Marcellus
11	9/8/2016	15481	15650	60	Marcellus
12	9/8/2016	15281	15450	60	Marcellus
13	9/9/2016	15081	15249	60	Marcellus
14	9/9/2016	14881	15049	60	Marcellus
15	9/10/2016	14681	14849	60	Marcellus
16	9/10/2016	14481	14649	60	Marcellus
17	9/11/2016	14280	14449	60	Marcellus
18	9/11/2016	14080	14249	60	Marcellus
19	9/12/2016	13880	14049	60	Marcellus
20	9/12/2016	13680	13849	60	Marcellus
21	9/13/2016	13480	13649	60	Marcellus
22	9/13/2016	13280	13449	60	Marcellus
23	9/14/2016	13080	13249	60	Marcellus
24	9/14/2016	12880	13049	60	Marcellus
25	9/15/2016	12680	12849	60	Marcellus
26	9/15/2016	12480	12649	60	Marcellus
27	9/16/2016	12280	12448	60	Marcellus
28	9/16/2016	12080	12248	60	Marcellus
29	9/17/2016	11880	12048	60	Marcellus
30	9/17/2016	11680	11848	60	Marcellus
31	9/18/2016	11479	11648	60	Marcellus
32	9/18/2016	11279	11448	60	Marcellus
33	9/19/2016	11079	11248	60	Marcellus
34	9/19/2016	10879	11048	60	Marcellus
35	9/20/2016	10679	10848	60	Marcellus
36	9/20/2016	10479	10648	60	Marcellus
37	9/21/2016	10279	10448	60	Marcellus
38	9/21/2016	10079	10248	60	Marcellus
39	9/22/2016	9879	10048	60	Marcellus
40	9/22/2016	9679	9848	60	Marcellus
41	9/23/2016	9479	9648	60	Marcellus
42	9/23/2016	9279	9447	60	Marcellus
43	9/24/2016	9079	9247	60	Marcellus
44	9/24/2016	8879	9047	60	Marcellus
45	9/25/2016	8678	8847	60	Marcellus
46	9/25/2016	8478	8647	60	Marcellus
47	9/25/2016	8278	8447	60	Marcellus
48	9/26/2016	8078	8247	60	Marcellus
49	9/26/2016	7878	8047	60	Marcellus
50	9/27/2016	7678	7847	60	Marcellus
51	9/27/2016	7478	7647	60	Marcellus
52	9/27/2016	7278	7447	60	Marcellus
53	9/28/2016	7078	7247	60	Marcellus
54	9/28/2016	6878	7047	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	9/1/2016	70.8	7426	5303.0	3698	353455	8345.0	N/A
2	9/2/2016	73.7	7812	5547.0	4623	349767	8377.0	N/A
3	9/2/2016	74.0	7188	5830.0	3304	357890	8293.0	N/A
4	9/3/2016	75.9	7363	5683.0	3366	347938	8268.0	N/A
5	9/4/2016	75.0	7116	6029.0	3459	355128	8315.0	N/A
6	9/4/2016	77.6	7461	5789.0	3355	353611	8184.0	N/A
7	9/5/2016	73.8	7535	5620.0	3228	356804	8245.0	N/A
8	9/5/2016	72.7	7101	5486.0	3309	352974	8595.0	N/A
9	9/6/2016	76.4	7138	5596.0	3211	354785	8283.0	N/A
10	9/7/2016	73.8	7163	5125.0	3266	353988	8471.0	N/A
11	9/8/2016	77.7	7044	5633.0	3223	354408	8091.0	N/A
12	9/8/2016	75.4	7374	5471.0	3335	353933	8151.0	N/A
13	9/9/2016	75.2	7310	5409.0	4099	350121	8176.0	N/A
14	9/9/2016	69.2	7512	5466.0	3542	355196	9942.0	N/A
15	9/10/2016	75.7	7895	5565.0	5380	353559	10429.0	N/A
16	9/10/2016	77.2	7728	5507.0	4521	352762	9893.0	N/A
17	9/11/2016	79.1	7584	5362.0	4437	353799	8539.0	N/A
18	9/11/2016	75.4	6927	5565.0	3470	353179	8219.0	N/A
19	9/12/2016	78.3	6977	5751.0	3544	354824	8364.0	N/A
20	9/12/2016	76.7	7159	6092.0	3723	352670	8167.0	N/A
21	9/13/2016	76.2	7499	5343.0	3948	353404	10157.0	N/A
22	9/13/2016	77.7	7225	5099.0	4626	349325	9546.0	N/A
23	9/14/2016	75.7	7269	5308.0	3691	355745	8226.0	N/A
24	9/14/2016	78.5	7138	5241.0	4111	356236	8168.0	N/A
25	9/15/2016	77.4	7140	5694.0	3565	354400	8271.0	N/A
26	9/15/2016	77.3	7025	5568.0	3625	359512	8318.0	N/A
27	9/16/2016	80.7	6866	5364.0	3425	354061	8140.0	N/A
28	9/16/2016	75.0	7184	5282.0	3498	355872	8117.0	N/A
29	9/17/2016	79.9	6889	5388.0	3521	353490	8049.0	N/A
30	9/17/2016	76.4	7152	5346.0	3244	355415	8058.0	N/A
31	9/18/2016	75.9	7149	5347.0	3495	353956	9224.0	N/A
32	9/18/2016	69.4	7044	5419.0	3610	355081	8045.0	N/A
33	9/19/2016	76.8	7058	5345.0	3446	353814	8297.0	N/A
34	9/19/2016	77.0	7196	5179.0	3500	354695	8007.0	N/A
35	9/20/2016	79.4	6739	5419.0	3522	349870	8051.0	N/A
36	9/20/2016	77.1	6807	5405.0	3555	354611	9149.0	N/A
37	9/21/2016	85.0	6665	5699.0	3520	354117	8061.0	N/A
38	9/21/2016	81.9	7156	5714.0	3366	355211	10033.0	N/A
39	9/22/2016	83.5	6806	5635.0	3346	353372	8037.0	N/A
40	9/22/2016	83.2	6980	5687.0	3455	354148	7957.0	N/A
41	9/23/2016	80.0	6813	5201.0	3125	352573	8010.0	N/A
42	9/23/2016	80.9	7081	5174.0	3314	355048	8003.0	N/A
43	9/24/2016	81.0	6711	5500.0	3690	352115	9082.0	N/A
44	9/24/2016	75.5	7478	4817.0	3902	305903	10400.0	N/A
45	9/25/2016	77.6	6904	5253.0	3212	354188	7868.0	N/A
46	9/25/2016	83.6	6708	5723.0	3262	356972	7853.0	N/A
47	9/25/2016	79.8	7035	5208.0	3407	354233	7965.0	N/A
48	9/26/2016	78.9	7290	5799.0	3432	356640	7956.0	N/A
49	9/26/2016	79.3	7184	5546.0	3265	355092	10159.0	N/A
50	9/27/2016	73.2	7206	5477.0	3141	353530	8962.0	N/A
51	9/27/2016	82.2	7047	5268.0	3305	359324	7953.0	N/A
52	9/27/2016	77.5	6991	5803.0	3490	353646	7893.0	N/A
53	9/28/2016	81.3	6683	6090.0	3356	357877	8519.0	N/A
54	9/28/2016	80.0	6997	5670.0	3264	355848	7866.0	N/A
AVG=		<b>77.4</b>	<b>7,147</b>	<b>5,497</b>	<b>3,580</b>	<b>19,080,115</b>	<b>459,747</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
Fresh Water	46'	N/A	46'	N/A
Fresh Water	98'	N/A	98'	N/A
Siltstone	0	228	0	228
Coal	est. 228	248	est. 228	248
Sandstone/Siltstone	est. 248	908	est. 248	908
Shale/Siltstone	est. 908	1128	est. 908	1128
Coal	est. 1128	1148	est. 1128	1148
Shale	est. 1148	1348	est. 1148	1348
Coal	est. 1348	1368	est. 1348	1368
Shale	est. 1368	1448	est. 1368	1448
Sandstone/Siltstone	est. 1448	1628	est. 1448	1628
Coal	est. 1628	1648	est. 1628	1648
Sandstone/Siltstone	est. 1648	2043	est. 1648	2047
Big Lime	2043	2152	2047	2159
Big Injun	2152	2691	2159	2712
Gantz Sand	2691	2783	2712	2805
Fifty Foot Sandstone	2783	2883	2805	2907
Gordon	2883	3208	2907	3238
Fifth Sandstone	3208	3287	3238	3319
Bayard	3287	3615	3319	3653
Warren	3615	3987	3653	4034
Speechley	3987	4719	4034	4780
Bradford	4719	5109	4780	5178
Benson	5109	5362	5178	5439
Alexander	5362	5556	5439	5638
Elk	5556	5901	5638	5991
Rhinestreet	5901	6212	5991	6314
Sycamore	6212	6380	6314	6517
Middlesex	6380	6482	6517	6676
Burkett	6482	6513	6676	6739
Tully	6513	6546	6739	6826
Marcellus	6546	NA	6826	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:	9/30/2016
Job End Date:	9/30/2016
State:	West Virginia
County:	Tyler
API Number:	47-095-02335-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Jujubee 1H
Latitude:	39.41428056
Longitude:	-80.87817500
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,644
Total Base Water Volume (gal):	20,013,042
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	Operator	Base Fluid					
			Water	7732-18-5	100.00000	91.22449	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.20444	

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SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant					
				Listed Below			
HCL >10%	Halliburton	Solvent					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
FR-76	Halliburton	Friction Reducer					
				Listed Below			
FDP-M1075-12	Halliburton	Scale Inhibitor					
				Listed Below			
SAND-COMMON WHITE - 100 MESH, 3307 LB BAG	Halliburton	Proppant					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
SP BREAKER	Halliburton	Breaker					
				Listed Below			

HAI-OS ACID INHIBITOR	Halliburton	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	8.51805	
			Hydrochloric acid	7647-01-0	30.00000	0.04628	
			Inorganic salt	Proprietary	30.00000	0.02075	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02075	
			Acrylamide acrylate copolymer	Proprietary	30.00000	0.02075	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Guar gum	9000-30-0	100.00000	0.01898	
			Ethylene Glycol	107-21-1	60.00000	0.00868	
			Telomer	Proprietary	10.00000	0.00145	
			Sodium persulfate	7775-27-1	100.00000	0.00035	
			Sodium polyacrylate	9003-04-7	1.00000	0.00014	
			Methanol	67-56-1	60.00000	0.00014	
			Fatty acids, tall oil	Proprietary	30.00000	0.00007	
			Ethoxylated alcohols	Proprietary	30.00000	0.00007	
			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1	30.00000	0.00007	
			Olefins	Proprietary	5.00000	0.00003	
			Propargyl alcohol	107-19-7	10.00000	0.00002	
			Acrylic acid	79-10-7	0.01000	0.00000	
			Sodium sulfate	7757-82-6	0.10000	0.00000	

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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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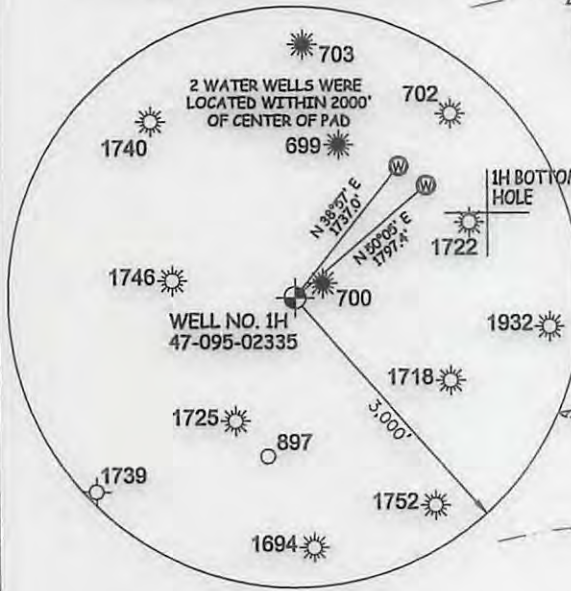
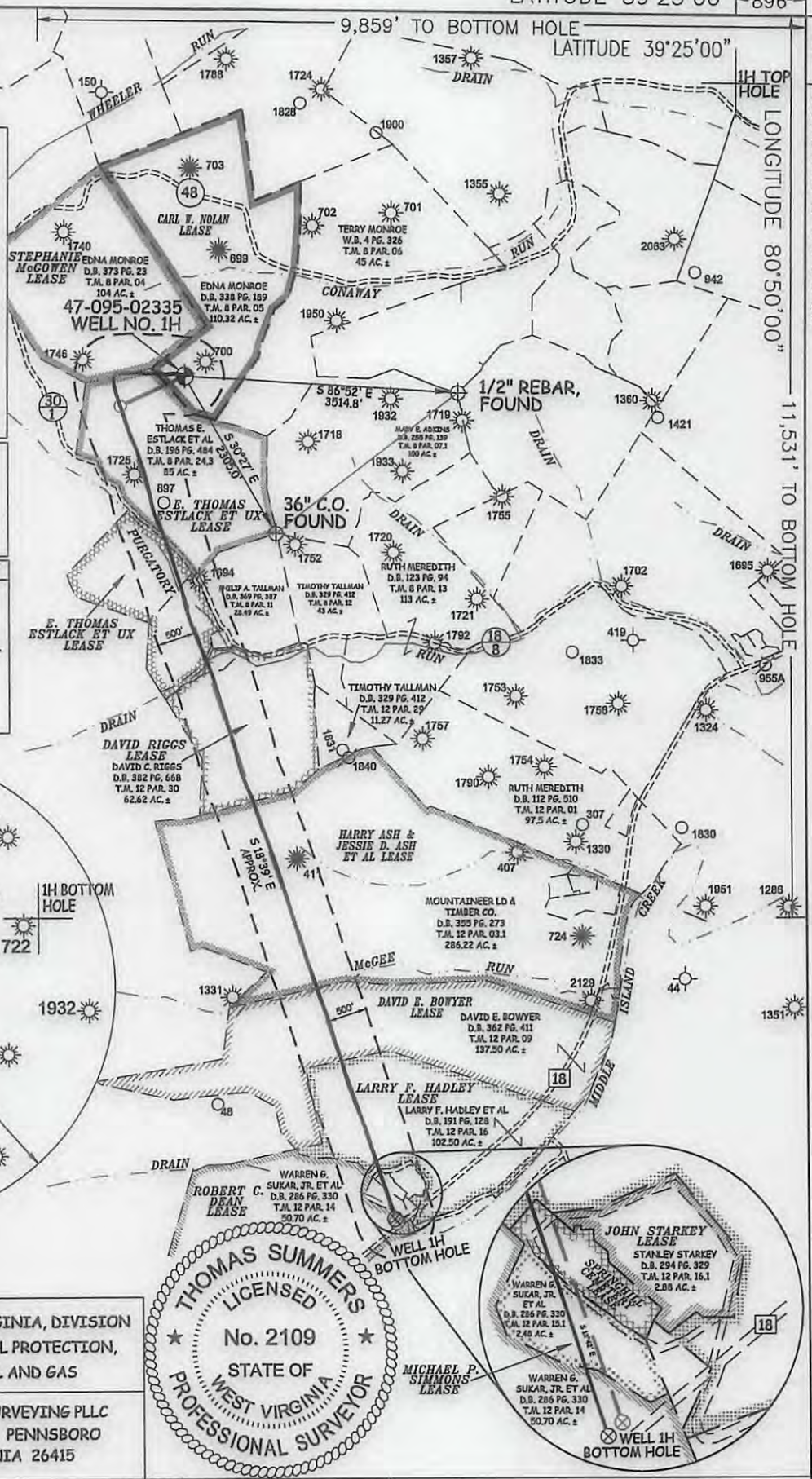
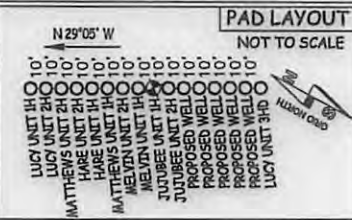
LATITUDE 39°25'00" -896'

LONGITUDE 80°52'30"

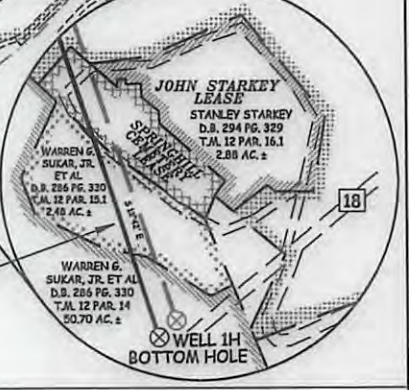
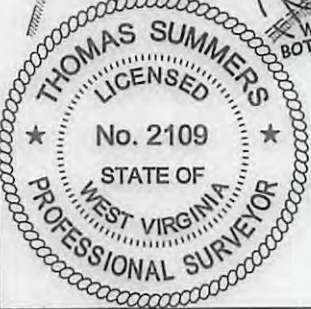
Antero Resources Corporation  
Well No. Jujubee Unit 1H  
47-095-02335 (AS DRILLED)

AS DRILLED DATA:  
WELL 1H TOP HOLE INFORMATION:  
N: 335,986ft E: 1,610,634ft  
LAT: 39°24'51.41" LON: 80°52'41.42"  
BOTTOM HOLE INFORMATION:  
N: 325,283ft E: 1,613,286ft  
LAT: 39°23'06.03" LON: 80°52'05.56"  
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: 4,362,767m E: 510,502m  
BOTTOM HOLE INFORMATION:  
N: 4,359,520m E: 511,364m



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 # 15-011WA  
DRAWING # JUJUBEE1HADR  
SCALE 1" = 2000'  
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

LEGEND  
--- Surface Owner Boundary Lines +/-  
--- Interior Surface Tracts +/-  
⊕ Found monument, as noted  
○ Proposed Well Path  
○ As Drilled Well Path  
THOMAS SUMMERS P.S. 2109  
DATE 07/03/17  
OPERATOR'S WELL# JUJUBEE UNIT #1H

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 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.

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ 47 - 095 - 02335  
(IF "GAS") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X STATE COUNTY PERMIT  
LOCATION: ELEVATION 1,142' - AS-DRILLED WATERSHED HEADWATERS MIDDLE ISLAND CREEK  
QUADRANGLE MIDDLEBOURNE 7.5' (TH) SHIRLEY 7.5' (BH) DISTRICT CENTERVILLE COUNTY TYLER  
SURFACE OWNER EDNA MONROE ACREAGE 110.32 ACRES +/-  
OIL & GAS ROYALTY OWNER CARL W. NOLAN; E. THOMAS ESTLACK ET UX; STEPHANIE MCGOWEN; E. THOMAS ESTLACK ET UX; DAVID RIGGS; HARRY ASH & JESSIE D. ASH ET AL; DAVID E. BOWYER; LARRY F. HADLEY; JOHN STARKEY; SPRINGHILL CEMETERY; MICHAEL P. SIMMONS; ROBERT C. DEAN  
PROPOSED WORK: DRILL \_\_\_ CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE \_\_\_  
PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG  
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,645' TVD 17,752' MD  
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM  
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD  
DENVER, CO 80202 CHARLESTON, WV 25313

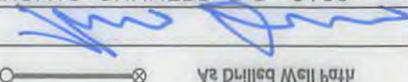
COUNTY NAME PERMIT

10/06/2017

EOBW MM-9      DEWLEY CO 80505      CHARLESTON, WV 25313  
 ADDRESS      1812 МАИКОФЪ СТ.      ADDRESS      2400 D BIG TALKER ROAD  
 МЕТТ ОЪЕКАТОР      ВИТЕКО ВЕЗОНЪСЪСЪСЪ      DESIGNATED AGENT      ДИВИДЪ СТАММУСЪ - С.И. СОВЪРОВАТИОНЪ СЪСЪСЪ  
 ТАРСЕЛЪ ФОРМАТИОНЪ      МАКСЕТИОНЪ      ESTIMATED DEPTH      8' 8.00' Т.В. 11' 1.25' М.В.  
 (SPECIFY)      (X) AS DRILLED      БЪНСЪ & АВАДИОНЪ      СТЕАНЪ ОУТЪ & ВЕБЪНСЪ  
 БЪНСЪ ОФЪ ОГДЪ ФОРМАТИОНЪ      ВЕВЪРОВАТЕ ИЕМЪ ФОРМАТИОНЪ      ОТЪНЪРЪ ФЪЗИКАЛЪ ЧЪНЪЖЕ ИНЪ МЕТТЪ  
 ВЪРОБЪДЕДЪ МОЪКЪ: ДЪИГЪ      СЪИМЪЕЛЪ      ДЪИГЪ      ДЕЕБЪСЪ      ВЕДЪИГЪ      ФЪРАКТИОНЪ ОФЪ СЪИМЪУЛАТЕ  
ИМЪВЪА ВЪНЪ & ТЪСЪСЪИЪ ДЪ ВЪНЪ ЕЛЪ ВЪ: ДЪВИДЪ Е. БОМЪКЪ; ГЪВЪВЪ Е. ИМЪДЪ; ТЪНИЪ СЪИВЪКЪ; СЪВЪИМЪИТЪ СЕВЕЛЪ; МЪИЪВЪ Е. СЪИМЪОНЪ; РОБЪЕРТЪ С. ДЪВИДЪ  
 ОИГЪ & СЪВЪ БОЛЪГЪТЪ ОМЪИЕЪ      СЪВЪГЪ МЪ КОГЪВЪ Е. ТЪНОМЪЪ СЪДЪЛЪКЪ ЕЛЪ ТЪ; СЪВЪИМЪИЕЪ ИССЪОМЪ Е. ТЪНОМЪЪ СЪДЪЛЪКЪ ЕЛЪ ТЪ; ДЪВИДЪ ВЪССЪ;      ГЕВЪЖЕ АСЪВЕАСЪ      110' VC # 022 VC# 110 VC# 80 VC# 80 VC#  
 СУБЪРАСЪ ОМЪИЕЪ      ЕДИМЪ МОИВЪОЕ      АСЪВЕАСЪ      110' 32' VC# 81-

LOCATION: ELEVATION      1145' - AS DRILLED      WATERSHED      HEADWATERS MIDDLE ISLAND CREEK  
 (IF "AS") PRODUCTION      X      STORAGE      DEEP      SHALLOW      X      STATE      COUNTY      PERMIT  
 МЕТТЪ ТЪПЪ: ОИГЪ      СЪВЪГЪ      X      ГЪИОНЪ ИНЪЕКТИОНЪ      WASTE DISPOSAL      11      082      05332

DIVISION OF OIL AND GAS  
 DEPARTMENT OF ENERGY  
 STATE OF WEST VIRGINIA  
 SUBMETER MAPPING GRADE SHEET  
 PROVEN SOURCE OF ELEVATION  
 ACCURACY      SUBMETER  
 MINIMUM DEGREE OF SCALE      1" = 5000'  
 DRAWING #      11000001HADR  
 JOB #      11-2014

ОЪЕКАТОРЪ, 2 МЕТТЪ #      11000001HADR  
 DATE      01/03/14  
 THOMAS SUMMERS P.S. 2108  
  
 0 --- 0      As Drilled Well Path  
 0 --- 0      Proposed Well Path  
 ⊕      Location of monument as noted  
 - - -      Interior Contour Lines +/-  
 - - -      Surface Owner Boundary Lines +/-

THE DATA AND INFORMATION THAT HAS BEEN PROVIDED  
 2. HAS BEEN BY NO MEANS REPRESENTATIVE FOR ANY PURPOSE OR UNDISCLOSED WITH  
 4. HAS BEEN FOR CERTAIN PURPOSES. THE DATA AND INFORMATION PROVIDED IS FOR THE  
 5. THE DATA AND INFORMATION PROVIDED IS FOR THE PURPOSES OF THE STATE OF WEST VIRGINIA  
 CENTER OF THE MOUNTAIN  
 INTERFERING WITH THE RIGHTS OF OTHERS. THE STATE OF WEST VIRGINIA HAS THE  
 1. NO OCCUPIED DWELLINGS OR OTHER STRUCTURES ARE WITHIN THE AREA (5000')



GRID NORTH  
 WA NORTH ZONE  
 ARE BASED ON GRID NORTH  
 AND MEGT REFERENCE TIE LINES  
 PLAT ORIENTATION CORNER  
 MAPPING GRADE SHEET  
 MEASUREMENTS TAKEN WITH  
 ZONE WAS DERIVED FROM  
 SYSTEM OF 1987 NORTH ZONE  
 WEST VIRGINIA COORDINATE  
 N: 38° 53.03' 00.00"      GON: 80° 25.02' 28.00"  
 BOTTOM HOGUE INFORMATION:  
 N: 35° 58' 34.44"      E: 1° 13' 52.88" 44"  
 MEGT TH TOP HOGUE INFORMATION:  
 N: 33° 58' 44.44"      E: 1° 10' 02.34" 44"  
 AS DRILLED DATA:  
 11-0002-05332 (AS DRILLED)  
 Well No. 11000001HADR  
 Antero Resources Corporation

11° 23' 1" TO BOTTOM HOGUE  
 80° 20' 00"      80° 25' 30"  
 LATITUDE 38.52,00"      38.52,00"