

Reviewed

Julian
7/9/18

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

API 47 - 017 - 06698 County Doddridge District West Union
Quad West Union 7.5' Pad Name Yvonne Pad Field/Pool Name -----
Farm name Yvonne Foster Well Number Walker Unit 3H
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 4355502.805m Easting 519868.570m
Landing Point of Curve Northing 4355225.98m Easting 519881.21m
Bottom Hole Northing 4352995.058m Easting 520794.819m

Elevation (ft) 1229' 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

RECEIVED
Office of Oil and Gas
JUL 06 2018

WV Department of
Environmental Protection

Date permit issued 2/25/2015 Date drilling commenced 6/29/2016 Date drilling ceased 10/24/2016
Date completion activities began 10/9/2017 Date completion activities ceased 2/14/2018
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 225' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1400' 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:
07/20/2018

API 47- 017 - 06698 Farm name Yvonne Foster Well number Walker Unit 3H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6870' (TOP)</u> TVD	<u>7048' (TOP)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3550 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 13810.02 mcfpd Oil 97.77 bpd NGL --- bpd Water 1683.10 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.

RECEIVED
Office of Oil and Gas

Drilling Contractor Patterson - UTI Drilling Company LLC
 Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company Kodiak Services Int'l
 Address 2219 Sawdust Road, Unit 1604-1605 City The Woodlands State TX Zip 77380

WV Department of
Environmental Protection

Cementing Company BJ Services
 Address 1036 East Main Street City Bridgeport State WV Zip 26330

Stimulating Company US Well Services
 Address 533 Industrial Park Drive City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Karin Cox Telephone 303-357-6820
 Signature [Signature] Title Permitting Agent Date 7/3/2018

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

07/20/2018

API 47-017-06698 Farm Name Yvonne Foster Well Number Walker Unit 3H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	10/9/2017	15309	15478	48	Marcellus
2	11/22/2017	15108	15277	48	Marcellus
3	1/1/2018	14908	15077	48	Marcellus
4	1/1/2018	14707	14876	48	Marcellus
5	1/2/2018	14507	14676	48	Marcellus
6	1/3/2018	14307	14476	48	Marcellus
7	1/3/2018	14106	14275	48	Marcellus
8	1/4/2018	13906	14075	48	Marcellus
9	1/4/2018	13705	13874	48	Marcellus
10	1/6/2018	13505	13674	48	Marcellus
11	1/7/2018	13305	13474	48	Marcellus
12	1/8/2018	13104	13273	48	Marcellus
13	1/8/2018	12904	13073	48	Marcellus
14	1/9/2018	12704	12873	48	Marcellus
15	1/9/2018	12503	12672	48	Marcellus
16	1/10/2018	12303	12472	48	Marcellus
17	1/10/2018	12102	12271	48	Marcellus
18	1/10/2018	11902	12071	48	Marcellus
19	1/11/2018	11702	11871	48	Marcellus
20	1/11/2018	11501	11670	48	Marcellus
21	1/13/2018	11301	11470	48	Marcellus
22	1/14/2018	11101	11270	48	Marcellus
23	1/14/2018	10900	11069	48	Marcellus
24	1/15/2018	10700	10869	48	Marcellus
25	1/16/2018	10499	10668	48	Marcellus
26	1/19/2018	10299	10468	48	Marcellus
27	1/19/2018	10099	10268	48	Marcellus
28	1/20/2018	9898	10067	48	Marcellus
29	1/21/2018	9698	9867	48	Marcellus
30	1/21/2018	9498	9667	48	Marcellus
31	1/22/2018	9297	9466	48	Marcellus
32	1/23/2018	9097	9266	48	Marcellus
33	1/23/2018	8896	9065	48	Marcellus
34	1/24/2018	8696	8865	48	Marcellus
35	1/25/2018	8496	8665	48	Marcellus
36	1/26/2018	8295	8464	48	Marcellus
37	1/26/2018	8095	8264	48	Marcellus
38	1/27/2018	7895	8063	48	Marcellus
39	1/28/2018	7694	7863	48	Marcellus
40	1/28/2018	7494	7663	48	Marcellus
41	1/29/2018	7293	7462	48	Marcellus
42	1/30/2018	7093	7262	48	Marcellus

RECEIVED
 Office of Oil and Gas
 JUL 26 2018
 WV Department of
 Environmental Protection

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	10/9/2017	72.3617	8004.75		5405	505,120	13368	N/A
2	11/22/2017	74.771	7827.024	5697	4640	513,050	10621	N/A
3	1/1/2018	59.5698	7459.303	5389	4036	509,635	12453.81	N/A
4	1/1/2018	66.5541	7618.951	5944	5609	509,090	10565.86	N/A
5	1/2/2018	63.7421	7346.421	6145	5516	511,620	10710	N/A
6	1/3/2018	65.4498	7348.775	6014	5161	513,160	11361.17	N/A
7	1/3/2018	65.3914	7212.124	5102	4478	512,080	10353.62	N/A
8	1/4/2018	66.0056	7126.612	5517	5175	512,420	10566	N/A
9	1/4/2018	66.1508	7218.65	6030	5161	511,330	10238.12	N/A
10	1/6/2018	64.794	7417.481	5710	4294	512,770	10521	N/A
11	1/7/2018	66.8552	7691.509	5814	4711	514,450	10373.64	N/A
12	1/8/2018	72.8141	7703.475	5511	4272	511,970	10499.62	N/A
13	1/8/2018	74.6705	7679.273	6035	4709	511,575	10303.19	N/A
14	1/9/2018	75.328	7918.257	5765	4356	509,995	10527.62	N/A
15	1/9/2018	75.4806	7697.872	5529	4329	509,820	10315.12	N/A
16	1/10/2018	72.1749	7354.777	5830	5175	511,890	10312.57	N/A
17	1/10/2018	75.453	7656.944	5407	5417	510,650	10227.14	N/A
18	1/10/2018	73.1015	7385.066	5382	5223	512,420	10204.57	N/A
19	1/11/2018	74.6739	8035.385	5427	3963	511,535	10126.36	N/A
20	1/11/2018	75.0796	7513.025	5316	5429	511,310	10285.57	N/A
21	1/13/2018	72.4427	7380.751	5324	5283	510,965	10365.95	N/A
22	1/14/2018	74.0898	7373.288	5633	5093	513,020	10202.9	N/A
23	1/14/2018	70.8975	7262.895	5234	3957	512,060	10220.64	N/A
24	1/15/2018	75.7527	7196.456	5197	4107	514,095	10304	N/A
25	1/16/2018	74.2267	7685.106	5768	4169	511,750	10206.14	N/A
26	1/19/2018	74.4073	7307.385	5365	5005	512,840	10371	N/A
27	1/19/2018	74.8522	7338.101	5296	4179	512,830	10175.29	N/A
28	1/20/2018	75.2665	6997.622	5203	5424	511,050	10308.69	N/A
29	1/21/2018	74.6791	7540.962	5840	4495	512,380	10151	N/A
30	1/21/2018	74.7003	7418.532	5570	4242	513,100	10347	N/A
31	1/22/2018	73.5237	7058.091	5893	3916	511,420	10195.71	N/A
32	1/23/2018	74.6	6904	5788	4232	511,200	10227.52	N/A
33	1/23/2018	73.6583	7114.344	6175	4384	510,250	10572	N/A
34	1/24/2018	74.6613	7614.082	6003	4009	513,100	10406.52	N/A
35	1/25/2018	74.43	7172.085	5225	4268	511,200	10205	N/A
36	1/26/2018	73.6054	6936.776	5755	4945	510,250	10315	N/A
37	1/26/2018	73.0338	7166.157	5931	4083	511,200	10036.38	N/A
38	1/27/2018	74.5002	7032.053	5628	5007	509,100	10384.86	N/A
39	1/28/2018	73.7004	7003.445	5585	4234	508,400	10561.48	N/A
40	1/28/2018	74.0473	7061.043	5907	4501	511,040	10208	N/A
41	1/29/2018	75.4	6950.3	6207	4811	515,030	9948.381	N/A
42	1/30/2018	72.1	6367.3	6884	4540	513,350	10209.95	N/A
	AVG=	72.1	7,359	5,682	4,665	21,485,520	439,857	TOTAL

JUL 16

WV Department
Environmental Protection

07/20/2018

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	225'	N/A	225'	N/A
Siltstone/Sandstone	0	147	0	87
Silty shale	est. 147	205	est. 87	227
Sandstone/Siltstone/Shale	est. 205	327	est. 227	347
Silty shale	est. 327	447	est. 347	565
Siltstone	est. 447	547	est. 565	607
Silty shale	est. 547	607	est. 607	1,127
Shale	est. 607	687	est. 1127	1,387
Silty sandstone	est. 687	727	est. 1387	1,507
Silty shale	est. 727	767	est. 1507	1,727
Sandstone tr coal	est. 767	787	est. 1727	1,767
Sandy shale	est. 787	907	est. 1767	1,807
Silty shale	est. 907	1,147	est. 1807	1,847
Silty sandstone	est. 1147	2,130	est. 1847	2,133
Big Lime	2,130	2,797	2,133	2,800
Fifty Foot Sandstone	2,797	2,879	2,800	2,882
Gordon	2,879	3,157	2,882	3,160
Fifth Sandstone	3,157	3,167	3,160	3,170
Bayard	3,167	3,965	3,170	3,968
Speechley	3,965	4,267	3,968	4,270
Balltown	4,267	4,744	4,270	4,747
Bradford	4,744	5,163	4,747	5,166
Benson	5,163	5,432	5,166	5,436
Alexander	5,432	6,488	5,436	6,503
Sycamore	6,488	6,657	6,503	6,690
Middlesex	6,657	6,790	6,690	6,876
Burkett	6,790	6,820	6,876	6,930
Tully	6,820	6,870	6,930	7,048
Marcellus	6,870	NA	7,048	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.

RECEIVED
Office of Oil and Gas
JUL 06 2018
WV Department of
Energy

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/21/2017
Job End Date:	1/30/2018
State:	West Virginia
County:	Doddridge
API Number:	47-017-06698-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Walker 3H
Latitude:	39.34865600
Longitude:	-80.76958600
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,032
Total Base Water Volume (gal):	18,867,705
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	87.77834	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	11.98528	
HCL Acid (12.6%-17.5%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.40000	0.09952	
			Hydrogen Chloride	7647-01-0	17.50000	0.02314	
LGC-15	U.S. Well Services, LLC	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.03160	
			Petroleum Distillates	64742-47-8	60.00000	0.02993	
			Suspending agent (solid)	14808-60-7	3.00000	0.00483	
			Surfactant	68439-51-0	3.00000	0.00190	
WFRA-405	U.S. Well Services, LLC	Friction Reducer	2-Propenoic acid, polymer with 2-propenamide	9003-06-9	30.00000	0.01568	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01263	

SI-1200	U.S. Well Services, LLC	Scale Inhibitor				
			Ethylene Glycol	107-21-1	40.00000	0.00741
			Proprietary Scale Inhibitor	Proprietary	10.00000	0.00198
Bioclear 2000	U.S. Well Services, LLC	Anti-Bacterial Agent				
			2,2-dibromo-3-nitriopropionamide	10222-01-2	20.00000	0.00428
			Deionized Water	7732-18-5	28.00000	0.00245
AP One	U.S. Well Services, LLC	Gel Breakers				
			Ammonium Persulfate	7727-54-0	100.00000	0.00094
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	0.00001
			Cinnamaldehyde	104-55-2	20.00000	0.00001
			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)

RECEIVED
Office of OH and
JUL 06 2018
WV Department
Environmental Protection

2,559' to Bottom Hole

5,672' to Top Hole

TOP HOLE LATITUDE 39 - 22 - 30
BOTTOM HOLE LATITUDE 39 - 20 - 00

Bearing	Dist.
L1 S 33°22' E	783.7'
L2 S 88°11' W	613.1'
L3 N 67°56' W	2,147.5'
L4 N 37°06' W	2,727.6'

LONGITUDE 80 - 45 - 00

2,623' to Bottom Hole

9,517' to Top Hole

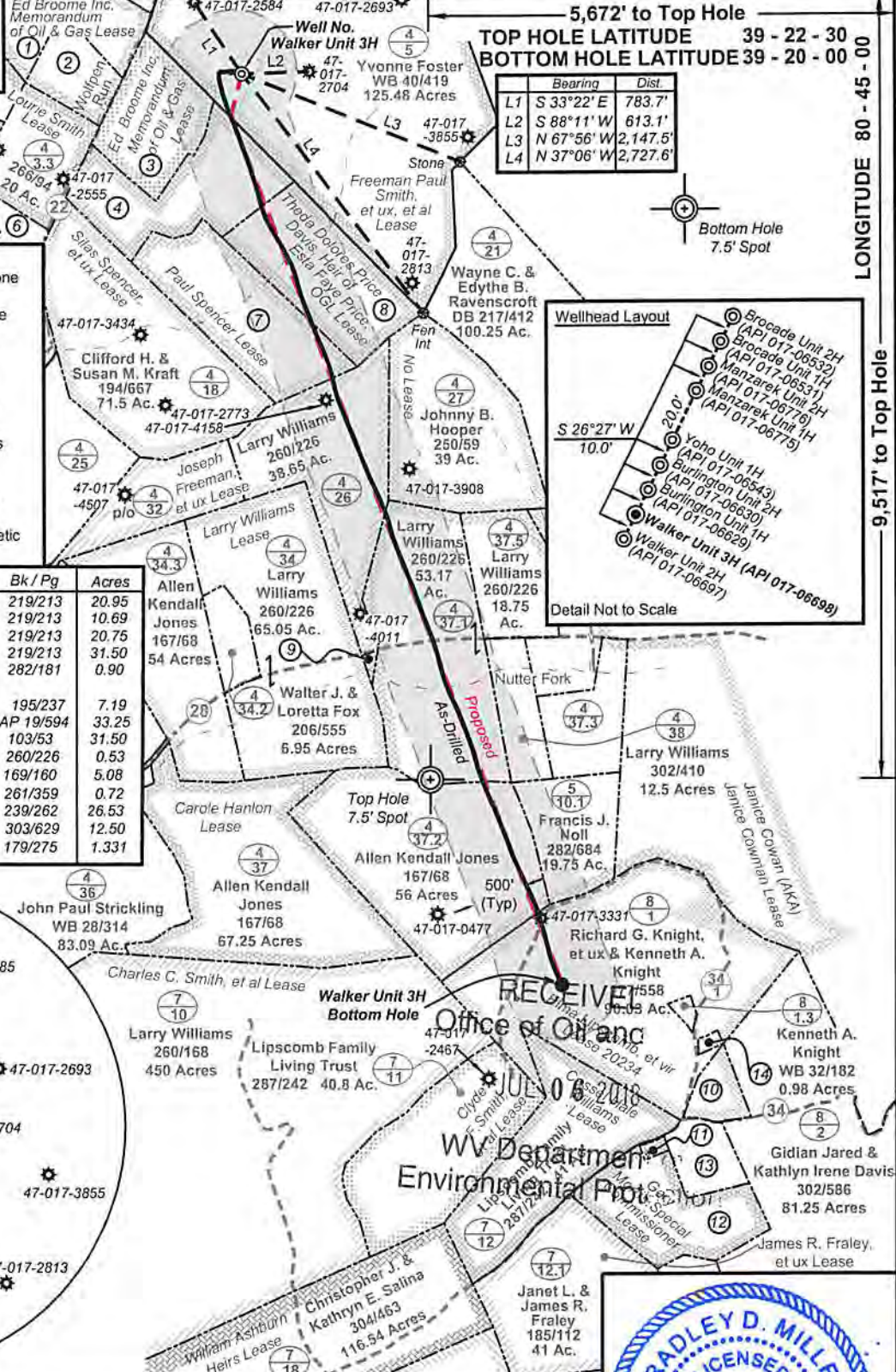
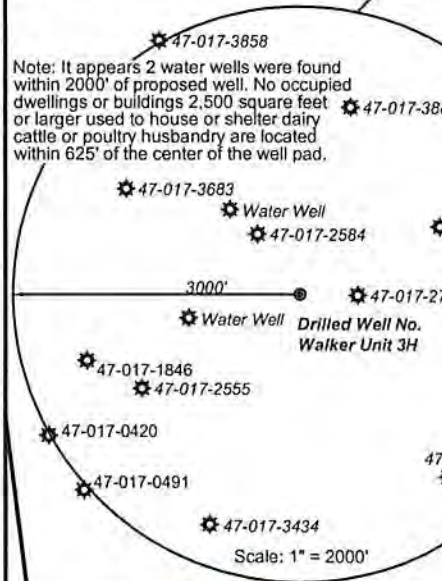
Antero Resources
Well No. Walker Unit 3H As-Drilled Plat
Antero Resources Corporation

Legend

- Proposed gas well
- Found corner, as noted
- Existing Well, as noted
- Creek or Drain
- Existing Road
- Surface boundary (approx.)
- Interior surface tracts (approx.)

Notes:
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. Walker Unit 3H Top Hole coordinates are
N: 311,633.95' Latitude: 39°20'55.16"
E: 1,640,972.20' Longitude: 80°46'10.51"
Bottom Hole coordinates are
N: 303,353.96' Latitude: 39°19'33.73"
E: 1,643,874.44' Longitude: 80°45'32.09"
UTM Zone 17, NAD 1983
Top Hole Coordinates Bottom Hole Coordinates
N: 4,355,502.805m N: 4,352,995.058m
E: 519,868.570m E: 520,794.819m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.

ID	TM/Par	Owner	Bk / Pg	Acres
1	2/16	David & Lucy Mae Sparling	219/213	20.95
2	4/4.2	David & Lucy Mae Sparling	219/213	10.69
3	4/4	David & Lucy Mae Sparling	219/213	20.75
4	4/4.1	David & Lucy Mae Sparling	219/213	31.50
5	4/2	Scott Adams, Gregory Adams, David Adams, & Jennifer Adams McFall	282/181	0.90
6	4/11	Gary Lynn McMillan	195/237	7.19
7	4/19	Naomi Beagle, et al	AP 19/594	33.25
8	4/20	Stella E. Spencer, et al	103/53	31.50
9	4/34.1	Larry Williams	260/226	0.53
10	8/1.1	Benjamin & Myrna Adams	169/160	5.08
11	8/15.1	Scotti B. & Melissa L. Chumley	261/359	0.72
12	8/15	Robert Glenn & Shelly A. Fraley	239/262	26.53
13	8/7	Steven & Lu Ann McCloy	303/629	12.50
14	8/1.2	Richard Gregory Knight, et ux	179/275	1.331



Top Hole Coordinates and As-drilled data and information was provided by Antero Resources Corporation. Allegheny Surveys Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

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 prescribed by the Department of Environmental Protection.

Bradley D. Miller
Bradley D. Miller, P.S. 2167



FILE NO: 39-30-WU-14
DRAWING NO: 39-14 Walker 3H Well Plat
SCALE: 1" = 1500'
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: May 10 20 18
OPERATOR'S WELL NO. Walker Unit 3H
API WELL NO
47 - 017 - 06698
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: 1229' As-Drilled WATERSHED: Headwaters Middle Island Creek QUADRANGLE: West Union
DISTRICT: West Union Freeman Paul Smith, et ux, et al; Paul Spencer; COUNTY: Doddridge 125;
SURFACE OWNER: Yvonne Foster Elma Lipscomb, et vir; Joseph Freeman, et ux; ACREAGE: 125.48 07/20/2018
ROYALTY OWNER: Theda Dolores Price Davis, Heir of Esta Faye Price, OGL; LEASE NO: 20234 ACREAGE: 33.25; 60
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,030' TVD
15,579' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
ADDRESS: 1615 Wynkoop ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313

