

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

API 47 - 017 - 06915 County Doddridge District West Union  
Quad TH: West Union -- BH: Smithburg Pad Name Gaspar Field/Pool Name -----  
Farm name Antero Midstream, LLC Well Number McKean 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 4351732m Easting 520474m  
Landing Point of Curve Northing 4351940.62m Easting 520962.06m  
Bottom Hole Northing 4347436m Easting 522483m

Elevation (ft) 1189' 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 1/18/2022 Date drilling commenced 3/5/2022 Date drilling ceased 4/28/2022  
Date completion activities began 8/13/2022 Date completion activities ceased 10/8/2022  
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 140, 200, 171' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1345' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 814' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by:

**APPROVED**

IMR 02/13/2023

**03/17/2023**

API 47-017 - 06915 Farm name Antero Midstream, LLC Well number McKean Unit 2H

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	26"	20"	130'	New	78.67#, X-60	N/A	Y
Surface	17-1/2"	13-3/8"	384'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2662'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	22956'	New	23#, P-110CY	N/A	Y
Tubing		2-3/8"	7166-3/5'		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	254 sx	15.6	1.18	140	0'	8 Hrs.
Surface	Class A	390 sx	15.8	1.16	452	0'	8 Hrs.
Coal							
Intermediate 1	Class A	897 sx	15.8	1.16	1041	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	3920 sx (Tail)	13.5 (Lead), 15.2(Tail)	5.92 (Lead), 1.18 (Tail)	4626	-500' into intermediate casing	8 Hrs.
Tubing							

Drillers TD (ft) 22956' MD, 6826' TVD (BHL), 6954' (Deepest Point Drilled) Loggers TD (ft) 22956' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6428'

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 shoes, 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 - 06915 Farm name Antero Midstream, LLC Well number McKean Unit 2H

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>								

Please insert additional pages as applicable.

API 47- 017 - 06915 Farm name Antero Midstream, LLC Well number McKean Unit 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6876' (TOP)</u>	<u>TVD</u>	<u>7308' (TOP)</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 2291 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 14155 mcfpd Oil 54 bpd NGL --- bpd Water 693 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	

**\*PLEASE SEE ATTACHED EXHIBIT 3**


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 GR Energy Services  
Address 2150 Town Square Pl #410 City Sugar Land State TX Zip 77479

Cementing Company Halliburton Energy Services  
Address 3000 W. Sam Houston Pkwy City Houston State TX Zip 76114

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 1/6/2023

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

03/17/2023

## Exhibit 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	08/13/2022	22839.2	22795.5	60	Marcellus
2	08/14/2022	22757.7	22590.4	60	Marcellus
3	08/14/2022	22554.6	22387.4	60	Marcellus
4	08/14/2022	22351.5	22184.3	60	Marcellus
5	08/15/2022	22148.4	21981.2	60	Marcellus
6	08/15/2022	21945.4	21778.1	60	Marcellus
7	08/15/2022	21742.3	21575.1	60	Marcellus
8	08/16/2022	21539.2	21372.0	60	Marcellus
9	08/16/2022	21336.1	21168.9	60	Marcellus
10	08/17/2022	21133.1	20965.8	60	Marcellus
11	08/17/2022	20930.0	20762.8	60	Marcellus
12	08/18/2022	20726.9	20559.7	60	Marcellus
13	08/18/2022	20523.9	20356.6	60	Marcellus
14	08/18/2022	20320.8	20153.6	60	Marcellus
15	08/18/2022	20117.7	19950.5	60	Marcellus
16	08/19/2022	19914.6	19747.4	60	Marcellus
17	08/19/2022	19711.6	19544.3	60	Marcellus
18	08/19/2022	19508.5	19341.3	60	Marcellus
19	08/19/2022	19305.4	19138.2	60	Marcellus
20	08/19/2022	19102.4	18935.1	60	Marcellus
21	08/20/2022	18899.3	18732.1	60	Marcellus
22	08/20/2022	18696.2	18529.0	60	Marcellus
23	08/20/2022	18493.1	18325.9	60	Marcellus
24	08/20/2022	18290.1	18122.8	60	Marcellus
25	08/21/2022	18087.0	17919.8	60	Marcellus
26	08/21/2022	17883.9	17716.7	60	Marcellus
27	08/21/2022	17680.8	17513.6	60	Marcellus
28	08/21/2022	17477.8	17310.5	60	Marcellus
29	08/21/2022	17274.7	17107.5	60	Marcellus
30	08/22/2022	17071.6	16904.4	60	Marcellus
31	08/22/2022	16868.6	16701.3	60	Marcellus
32	08/22/2022	16665.5	16498.3	60	Marcellus
33	08/22/2022	16462.4	16295.2	60	Marcellus
34	08/22/2022	16259.3	16092.1	60	Marcellus
35	08/23/2022	16056.3	15889.0	60	Marcellus
36	08/23/2022	15853.2	15686.0	60	Marcellus
37	08/23/2022	15650.1	15482.9	60	Marcellus
38	08/23/2022	15447.0	15279.8	60	Marcellus
39	08/24/2022	15244.0	15076.7	60	Marcellus
40	08/24/2022	15040.9	14873.7	60	Marcellus
41	08/24/2022	14837.8	14670.6	60	Marcellus
42	08/24/2022	14634.8	14467.5	60	Marcellus
43	08/24/2022	14431.7	14264.5	60	Marcellus
44	08/25/2022	14228.6	14061.4	60	Marcellus
45	08/25/2022	14025.5	13858.3	60	Marcellus
46	08/25/2022	13822.5	13655.2	60	Marcellus
47	08/25/2022	13619.4	13452.2	60	Marcellus
48	08/25/2022	13416.3	13249.1	60	Marcellus
49	08/26/2022	13213.3	13046.0	60	Marcellus
50	08/26/2022	13010.2	12843.0	60	Marcellus
51	08/26/2022	12807.1	12639.9	60	Marcellus
52	08/26/2022	12604.0	12436.8	60	Marcellus
53	08/27/2022	12401.0	12233.7	60	Marcellus
54	08/27/2022	12197.9	12030.7	60	Marcellus
55	08/27/2022	11994.8	11827.6	60	Marcellus
56	08/27/2022	11791.7	11624.5	60	Marcellus
57	08/28/2022	11588.7	11421.4	60	Marcellus
58	08/28/2022	11385.6	11218.4	60	Marcellus
59	08/28/2022	11182.5	11015.3	60	Marcellus
60	08/28/2022	10979.5	10812.2	60	Marcellus
61	08/28/2022	10776.4	10609.2	60	Marcellus
62	08/28/2022	10573.3	10406.1	60	Marcellus
63	08/29/2022	10370.2	10203.0	60	Marcellus
64	08/29/2022	10167.2	9999.9	60	Marcellus
65	08/29/2022	9964.1	9796.9	60	Marcellus
66	08/29/2022	9761.0	9593.8	60	Marcellus
67	08/29/2022	9558.0	9390.7	60	Marcellus
68	08/30/2022	9354.9	9187.7	60	Marcellus
69	08/30/2022	9151.8	8984.6	60	Marcellus
70	08/30/2022	8948.7	8781.5	60	Marcellus
71	08/30/2022	8745.7	8578.4	60	Marcellus
72	08/30/2022	8542.6	8375.4	60	Marcellus
73	08/31/2022	8339.5	8172.3	60	Marcellus
74	08/31/2022	8136.4	7969.2	60	Marcellus
75	08/31/2022	7933.4	7766.1	60	Marcellus
76	08/31/2022	7730.3	7563.1	60	Marcellus
77	08/31/2022	7527.2	7360.0	60	Marcellus



**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	08/13/2022	79.4	9314	5214	4235	156,680	192,780	N/A
2	08/14/2022	81.5	9701	5384	4722	400,580	623,482	N/A
3	08/14/2022	95.9	10391	5195	4340	408,440	327,222	N/A
4	08/14/2022	84.2	9761	5553	4751	406,380	315,420	N/A
5	08/15/2022	85.6	9751	4716	4234	404,520	299,969	N/A
6	08/15/2022	86.4	10033	5249	4136	397,830	355,371	N/A
7	08/15/2022	90.1	10030	4580	4007	406,620	287,817	N/A
8	08/16/2022	90.2	10109	4394	4384	409,580	294,533	N/A
9	08/16/2022	93.2	10087	4728	4736	405,580	291,094	N/A
10	08/17/2022	91.5	9995	4790	4608	404,140	290,455	N/A
11	08/17/2022	94.6	10269	5374	4975	399,040	287,488	N/A
12	08/18/2022	91.3	10219	6003	4864	417,000	294,567	N/A
13	08/18/2022	92.1	10335	4922	4792	404,910	292,074	N/A
14	08/18/2022	94.7	10313	4365	4835	403,760	290,231	N/A
15	08/18/2022	92.9	10237	6031	4942	399,760	282,393	N/A
16	08/19/2022	89.8	10333	5634	4590	400,460	283,385	N/A
17	08/19/2022	93.2	10248	5587	4610	400,160	290,247	N/A
18	08/19/2022	92.7	10275	5524	4354	407,510	295,633	N/A
19	08/19/2022	92.2	10276	5796	4978	399,000	291,604	N/A
20	08/19/2022	96.8	10054	3727	5009	415,840	300,098	N/A
21	08/20/2022	94.5	9931	6125	5423	400,120	299,566	N/A
22	08/20/2022	90.5	9350	5321	4317	407,060	332,994	N/A
23	08/20/2022	96.5	9969	5760	4529	411,700	297,448	N/A
24	08/20/2022	97.3	9904	5452	4317	409,150	293,326	N/A
25	08/21/2022	97.2	9923	5632	5189	399,980	314,195	N/A
26	08/21/2022	92.8	9750	5549	4436	413,840	374,100	N/A
27	08/21/2022	97.5	9920	4436	4644	397,700	288,163	N/A
28	08/21/2022	97.5	9994	4494	4397	413,990	304,219	N/A
29	08/21/2022	96.7	9286	6208	4678	400,200	285,814	N/A
30	08/22/2022	96.0	9545	5814	5628	417,090	300,696	N/A
31	08/22/2022	96.6	9555	5986	4478	406,410	331,830	N/A
32	08/22/2022	88.5	9387	6065	4295	382,860	330,081	N/A
33	08/22/2022	96.5	9798	6294	5866	399,780	290,010	N/A
34	08/22/2022	96.8	9545	4958	4820	396,980	296,071	N/A
35	08/23/2022	95.7	9472	5603	5592	397,400	287,891	N/A
36	08/23/2022	93.8	9182	5567	5107	398,570	297,336	N/A
37	08/23/2022	94.4	9577	6025	4562	399,510	323,338	N/A
38	08/23/2022	95.8	9841	5985	5215	402,390	288,300	N/A
39	08/24/2022	97.8	9563	4804	4992	403,740	293,196	N/A
40	08/24/2022	93.4	9255	5696	4595	397,210	290,874	N/A
41	08/24/2022	92.7	8934	4931	4286	400,500	273,610	N/A
42	08/24/2022	95.1	8997	4967	5204	403,950	297,270	N/A
43	08/24/2022	97.0	9007	5810	4099	414,410	291,392	N/A
44	08/25/2022	96.7	9126	5879	5261	399,450	285,566	N/A
45	08/25/2022	95.3	8753	5555	4867	418,210	299,140	N/A
46	08/25/2022	96.1	8860	5847	4214	416,120	311,699	N/A
47	08/25/2022	96.3	8956	5678	4658	419,110	286,403	N/A
48	08/25/2022	98.1	9024	5969	5396	399,630	286,956	N/A
49	08/26/2022	98.3	9085	5205	4999	415,930	287,850	N/A
50	08/26/2022	97.7	9437	6127	4177	417,670	283,343	N/A
51	08/26/2022	96.8	9016	5818	4253	398,190	281,894	N/A
52	08/26/2022	51.0	6228	5823	3985	322,392	265,431	N/A
53	08/27/2022	95.0	9233	5741	4800	398,400	354,687	N/A
54	08/27/2022	96.2	8951	5787	4409	406,390	296,094	N/A
55	08/27/2022	95.2	8662	5630	4237	414,160	288,715	N/A
56	08/27/2022	97.5	8908	6233	5339	400,000	283,150	N/A
57	08/28/2022	97.8	8551	5763	5150	401,950	279,195	N/A
58	08/28/2022	91.6	9157	5680	3980	403,860	319,819	N/A
59	08/28/2022	97.0	8271	5574	4149	404,260	275,939	N/A
60	08/28/2022	90.7	8696	5754	4222	402,650	275,961	N/A
61	08/28/2022	96.1	8554	5961	4809	402,870	278,212	N/A
62	08/28/2022	96.3	8225	5864	5176	412,910	280,795	N/A
63	08/29/2022	89.7	8073	6120	5345	418,940	343,966	N/A
64	08/29/2022	96.6	8074	6207	4192	401,940	276,706	N/A
65	08/29/2022	96.9	8281	5931	4409	407,470	265,495	N/A
66	08/29/2022	92.7	7862	5896	4575	401,140	271,503	N/A
67	08/29/2022	95.3	7790	5785	4538	402,070	271,913	N/A
68	08/30/2022	97.2	7801	5862	4370	405,020	294,189	N/A
69	08/30/2022	92.8	7731	5972	4892	397,080	354,517	N/A
70	08/30/2022	97.3	7766	5767	4763	404,220	298,107	N/A
71	08/30/2022	96.1	8166	6212	4804	402,500	284,577	N/A
72	08/30/2022	96.4	7670	5802	4499	402,960	278,536	N/A
73	08/31/2022	96.4	7540	5652	4309	401,950	288,069	N/A
74	08/31/2022	97.8	8057	5572	4572	399,660	278,914	N/A
75	08/31/2022	97.7	7858	6387	4314	400,520	280,154	N/A
76	08/31/2022	97.4	7790	5450	4522	395,170	276,452	N/A
77	08/31/2022	98.1	7458	5956	3704	394,370	279,917	N/A
	AVG=	94	9,156	5,568	4,658	30,811,492	23,031,447	TOTAL

## EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Shaley Siltstone	120	210	120	210
Shale	210	390	210	390
Silty Shale	390	480	390	480
Shale	480	810	480	810
Silty Shale	810	840	810	840
Shaley Sandstone	840	960	840	960
Shaley Sandstone	960	1,050	960	1,050
Shale	1,050	1,110	1,050	1,110
Sandy Shale	1,110	1,230	1,110	1,230
Shaley Sandstone	1,230	1,290	1,230	1,290
Sandstone, Tr Shale, Tr Silt	1,290	1,710	1,290	1,710
Shaley Sandstone, Occ Coal	1,710	1,890	1,710	1,890
Sandy Shale, Tr Coal, Tr Limestone	1,890	2,132	1,890	2,219
Big Lime	2,162	2,789	2,219	2,901
Fifty Foot Sandstone	2,789	2,864	2,871	2,979
Gordon	2,864	3,146	2,949	3,273
Fifth Sandstone	3,146	3,346	3,243	3,481
Bayard	3,346	4,017	3,451	4,179
Speechley	4,017	4,290	4,149	4,461
Balltown	4,290	4,699	4,431	4,882
Bradford	4,699	5,166	4,852	5,373
Benson	5,166	5,436	5,343	5,652
Alexander	5,436	6,691	5,622	6,987
Sycamore	6,456	6,661	6,720	6,957
Middlesex	6,661	6,795	6,957	7,145
Burkett	6,795	6,824	7,145	7,194
Tully	6,824	6,876	7,194	7,308
Marcellus	6,876	NA	7,308	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.

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/13/2022
Job End Date:	8/31/2022
State:	West Virginia
County:	Doddridge
API Number:	47-017-06915-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	MCKEAN UNIT 2H
Latitude:	39.31466000
Longitude:	-80.76268000
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,954
Total Base Water Volume (gal):	24,181,490
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
Produced Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.78205	Density = 8.50
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.17369	



OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
MC B-8614A	MultiChem	Biocide					
				Listed Below			
HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
Sand-Premium White-30/70	Halliburton	Proppant					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
HYDROCHLORI C ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
FDP-S1443-21	Halliburton	Corrosion Inhibitor					
				Listed Below			

Excelerate LX-15	Halliburton	Friction Reducer					
				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	13.00894	
			Hydrochloric acid	7647-01-0	30.00000	0.04097	
			Complex Amine Compound	Proprietary	60.00000	0.02881	
			Guar gum	9000-30-0	100.00000	0.01550	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01441	
			Glutaraldehyde	111-30-8	30.00000	0.00249	
			Sobitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00240	
			Surfactant	Proprietary	5.00000	0.00240	
			Ethoxylated alcohols	Proprietary	30.00000	0.00054	
			Alkoxyated polyhydric alcohol	Proprietary	1.00000	0.00048	
			Organic chloride compound	Proprietary	1.00000	0.00048	
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00042	
			Ammonium persulfate	7727-54-0	100.00000	0.00040	
			Methanol	67-56-1	100.00000	0.00025	
			Oxylated phenolic resin	Proprietary	30.00000	0.00012	
			Ethanol	64-17-5	1.00000	0.00008	
			Modified thiourea polymer	Proprietary	30.00000	0.00004	
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00003	
			Aldehyde	Proprietary	5.00000	0.00001	
			Organic salt #1	Proprietary	0.01000	0.00000	
			Organic salt #2	Proprietary	0.01000	0.00000	

			Sodium hydroxide	1310-73-2	0.01000	0.00000	
			Sodium glycolate	2836-32-0	0.01000	0.00000	
			Acrylamide	79-06-1	0.01000	0.00000	
			Nitrated acetate salt	Proprietary	0.01000	0.00000	
			Formaldehyde	50-00-0	0.01000	0.00000	
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000	
			Hexadecene	629-73-2	5.00000	0.00000	
			Propargyl alcohol	107-19-7	5.00000	0.00000	
			1-Hexadecene	629-73-2	1.00000	0.00000	
			1-Octadecene	112-88-9	1.00000	0.00000	

\* 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)



**Antero Resources**  
Well No. **McKean 2H**  
**As-Drilled**  
Antero Resources Corporation



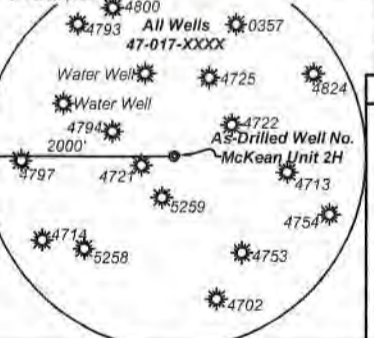
Top Hole Coordinates, As-drilled data, and information was provided by Antero Resources Corporation, Allegheny Surveys Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

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.

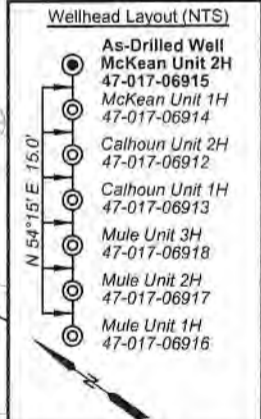
*Bradley D. Miller*  
Bradley D. Miller, P.S. 2167



Note: 2 water well was found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



- Legend**
- Proposed gas well
  - ⊗ Monument, as noted
  - ⊙ Existing Well, as noted
  - ⊛ Digitized Well, as noted
  - Creek or Drain
  - Road
  - Surface boundary (approx.)
  - Interior surface tracts (approx.)



8,827' to Bottom Hole

TOP HOLE LATITUDE 39 - 20 - 00  
BTM HOLE LATITUDE 39 - 17 - 30

**Notes**  
West Virginia Coordinate System of 1927, North Zone  
based upon Differential GPS Measurements.  
Well No. McKean Unit 2H Top Hole coordinates are  
N: 299,226.36' Latitude: 39°18'52.78"  
E: 1,642,752.97' Longitude: 80°45'45.62"  
Bottom Hole coordinates are  
N: 285,019.86' Latitude: 39°16'33.25"  
E: 1,649,110.85' Longitude: 80°44'22.24"  
UTM Zone 17, NAD 1983  
Top Hole Coordinates Bottom Hole Coordinates  
N: 4,351,731.867m N: 4,347,436.190m  
E: 520,474,139m E: 522,483,262m  
Plat orientation and corner and well references are based upon the grid north meridian.  
Well location references are based upon the magnetic meridian.

TOP HOLE LONGITUDE 80 - 45 - 00  
BTM HOLE LONGITUDE 80 - 42 - 30  
5,742' to Bottom Hole  
6,802' to Top Hole

**McKean Unit 2H As-Drilled POE Coordinates**  
West Virginia Coordinate System of 1927, North Zone  
N: 299,884.62'  
E: 1,644,365.53'  
Latitude: 39°18'59.51"  
Longitude: 80°45'25.23"  
UTM Zone 17, NAD 1983  
N: 4,351,940.615m  
E: 520,962.060m

**Leases**

A	William A. Farr
B	James Lincoln Smith
C	William Ashburn Heirs
D	James R. Fraley, et ux
E	David Lipscomb
F	Charles A. McKinney
G	Robert W. Sponaugle
H	D.L. Dotson, et ux
I	Betty Lou Calhoun
J	Jackson V. Moffatt
K	Jim Spencer
L	William Franklin Willis
M	David E. Spongaule
N	Rossie & Eva Lowery
O	Franklin L. Butler & Key Oil Co.
P	WVDNR
Q	C.M. Tate, et ux
R	WV State Rail Authority
S	Grace Evelyn Bunner
T	Thomas L. Barnes, et ux
U	AMP Fund III, LP
V	Alton J. Childers, et al
W	Winnie J. Hackley
X	W.L. Davis, et ux

FILE NO: 46-30-WU-14  
DRAWING NO: McKean 2H As-Drilled  
SCALE: 1" = 2000'  
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 20 20 22  
OPERATOR'S WELL NO. McKean Unit 2H  
API WELL NO  
47 - 017 - 06915  
STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built: 1,189' WATERSHED: Middle Island Creek QUADRANGLE: TH: West Union BH: Smithburg

DISTRICT: West Union Antero COUNTY: Doddridge

SURFACE OWNER: Midstream, LLC ALTON J. CHILDERS, ET AL; WVDNR; WV STATE RAIL AUTHORITY; C.M. TATE, ET UX; GRACE EVELYN BUNNER; JACKSON V. MOFFATT; FRANKLIN L. BUTLER & KEY OIL CO.; ROSSIE & EVA LOWERY; CHARLES A. MCKINNEY; ROBERT W. SPONAUAGLE; BETTY LOU CALHOUN; ACREAGE: 45.8

ROYALTY OWNER: William A. Farr; James R. Fraley, et ux; W.L. Davis, et ux; AMP Fund III, LP; LEASE NO: ACREAGE: 40.37; 34.53125;

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: 6,826' TVD 22,956' MD

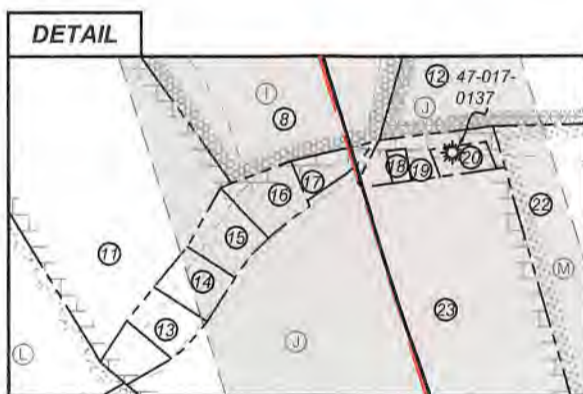
WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Kevin Ellis  
ADDRESS: 1615 Wynkoop Street ADDRESS: 535 White Oak Blvd.  
Denver, CO 80202 Bridgeport, WV 26330



**Antero Resources**  
**Well No. McKean 2H**  
**As-Drilled**  
 Antero Resources Corporation



ID	TM/Par	Owner	Bk/Pg	Acres
1	7-18.1	Antero Midstream, LLC	346/612	45.80
2	7-29	Sharon A. Gaspar	W113/242	182.67
3	7-18	Antero Midstream, LLC	387/708	116.54
4	7-12.1	James R. Fraley, Jr.	459/86	4.00
5	7-19	James R. Fraley, Jr.	459/86	2.60
6	8-53	Charter McKinney Heirs	69/311	13.00
7	8-24	Robert Sponaugle	248/81	13.00
8	8-31	Jacqueline D. & Gayford A. Cox	469/369	53.75
9	8-31.1	Jackson H. & Doris Todd Calhoun	365/647	41.92
10	8-25	Robert Bousman	282/129	15.14
11	8-40	Spencer Enterprise, LLC	261/512	11.06
12	8-48	James B. Lambert	152/384	20.15
13	8-40.4	Kristen Thomas	362/507	0.81
14	8-40.3	Jonathan M. Johnson	305/616	0.48
15	8-40.2	Sharon K. & Robert W. Sponaugle	W37/387	0.56
16	8-40.1	Melanie A. & Benjamin M. Blair	330/195	0.56
17	8-45.1	Jeffery K. II & Brenda L. Carder	364/431	0.33
18	8-44	Wesleyan Methodist Church	30/249	0.05
19	8-46	Rock Run Allegheny Wesleyan Church	167/46	0.66
20	8-47	David E. & Amy Jo Sponaugle	440/479	0.25
21	8-49	David E. & Amy Jo Sponaugle	233/220	14.33
22	8-45	Tensil D. Davis	312/177	20.89
23	12-4	Sharon E. Walker & Ronald J. Burns	259/365	18.70
24	12-6	Rossie & Eva Lowery, et al	258/336	15.30
25	12-7	Harold F. Robinson, et al	196/331	26.00
26	12-23	Rossie & Eva Lowery	258/336	14.63
27	12-24	Harold F. Robinson, et al	196/331	0.75
28	12-101	WV Railroad Maintenance Authority	216/166	11.30
29	12-103	Barnes Siblings Property, LLC	471/545	43.11
30	12-51	Key Oil Co., et al	259/283	43.70
31	12-64	Frank L. Butler, et al	259/275	34.13
32	12-64.2	Frank L. Butler, et al	259/275	0.55
33	12-65	James T. & Claire A. Robinson, et al	436/695	10.86
34	12-72	James T. & Claire A. Robinson, et al	436/695	35.96
35	12-72.10	Doddridge County Board of Education	214/427	18.45
36	12-72.4	Doddridge County 4-H Association	162/441	44.30
37	12-72.14	Doddridge County Board of Education	222/599	10.38
38	12-72.11	Doddridge County Board of Education	214/383	3.03
39	16-72.1	William H Krisely, III	244/117	27.27
40	16-21	Dustin Underwood & Matthew Samer	309/252	27.27
41	16-3	Marie E. Gassaway	249/661	10.00
42	16-22	William H Krisely, III	247/201	27.27
43	16-7	Doddridge County Park & Recreation	304/437	179.23
44	16-17	I.L. Morris	230/307	108.59



FILE NO: 46-30-WU-14  
 DRAWING NO: McKean 2H As-Drilled  
 SCALE: 1" = 2000'  
 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 20 2022  
 OPERATOR'S WELL NO. McKean Unit 2H  
 API WELL NO  
 47 - 017 - 06915  
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built: 1,189' HEADWATERS: Middle Island Creek QUADRANGLE: TH: West Union BH: Smithburg  
 DISTRICT: West Union Antero COUNTY: Doddridge  
 SURFACE OWNER: Midstream, LLC ACREAGE: 45.8  
 ROYALTY OWNER: William A. Farr; James R. Fraley, et ux; W.L. Davis, et ux; AMP Fund III, LP; LEASE NO: ACREAGE: 40.37; 34.53125;  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled 6,826' TVD  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 22,956' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Kevin Ellis  
 ADDRESS: 1615 Wynkoop Street ADDRESS: 535 White Oak Blvd.  
 Denver, CO 80202 Bridgeport, WV 26330



**Antero Resources**  
**Well No. McKean 2H**  
**As-Drilled**  
 Antero Resources Corporation



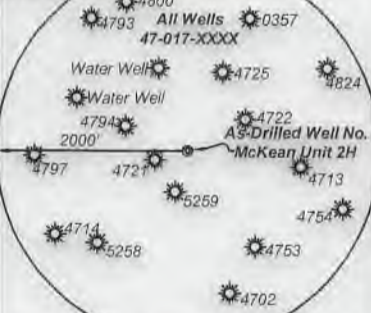
Top Hole Coordinates, As-drilled data, and information was provided by Antero Resources Corporation. Allegany Surveys Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

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, P.S. 2167



Note: 2 water well was found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



**Legend**

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

3,586' to Top Hole

8,827' to Bottom Hole

TOP HOLE LATITUDE 39 - 20 - 00  
 BTM HOLE LATITUDE 39 - 17 - 30

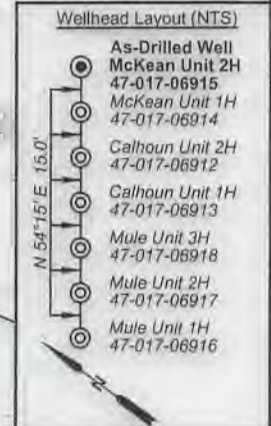
**Notes**  
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements. Well No. McKean Unit 2H Top Hole coordinates are N: 299,226.36' Longitude: 80°45'45.62" Bottom Hole coordinates are N: 285,019.86' Longitude: 80°44'22.24" UTM Zone 17, NAD 1983  
 Top Hole Coordinates: Bottom Hole Coordinates  
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 E: 520,474.139m E: 522,483.262m  
 Plat orientation and corner and well references are based upon the grid north meridian. Well location references are based upon the magnetic meridian.

TOP HOLE LONGITUDE 80 - 45 - 00  
 BTM HOLE LONGITUDE 80 - 42 - 30  
 5,742' to Bottom Hole  
 6,802' to Top Hole

McKean Unit 2H As-Drilled POE Coordinates  
 West Virginia Coordinate System of 1927, North Zone  
 N: 299,884.62' E: 1,644,365.53'  
 Latitude: 39°18'59.51" Longitude: 80°45'25.23"  
 UTM Zone 17, NAD 1983  
 N: 4,351,940.615m E: 520,962.060m

**Leases**

A	William A. Farr
B	James Lincoln Smith
C	William Ashburn Heirs
D	James R. Fraley, et ux
E	David Lipscomb
F	Charles A. McKinney
G	Robert W. Sponaugle
H	D. L. Dotson, et ux
I	Betty Lou Calhoun
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T	Thomas L. Barnes, et ux
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V	Alton J. Childers, et al
W	Winnie J. Hackley
X	W.L. Davis, et ux



FILE NO: 46-30-WU-14  
 DRAWING NO: McKean 2H As-Drilled  
 SCALE: 1" = 2000'  
 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 20 2022  
 OPERATOR'S WELL NO. McKean Unit 2H  
 API WELL NO  
 47 - 017 - 06915  
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built: 1,189' WATERSHED: Middle Island Creek QUADRANGLE: TH: West Union BH: Smithburg  
 DISTRICT: West Union Antero SURFACE OWNER: Midstream, LLC COUNTY: Doddridge  
 ROYALTY OWNER: William A. Farr, James R. Fraley, et ux; W.L. Davis, et ux; AMP Fund III, LP; LEASE NO: ACREAGE: 45.8  
 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: 6,826' TVD 22,956' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Kevin Ellis  
 ADDRESS: 1615 Wynkoop Street ADDRESS: 535 White Oak Blvd.  
 Denver, CO 80202 Bridgeport, WV 26330

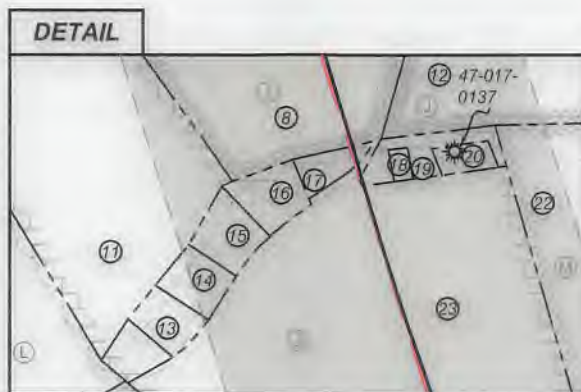
03/17/2023



**Antero Resources**  
**Well No. McKean 2H**  
**As-Drilled**  
 Antero Resources Corporation



ID	TM/Par	Owner	Bk/Pg	Acres
1	7-18.1	Antero Midstream, LLC	346/612	45.80
2	7-29	Sharon A. Gaspar	W113/242	182.67
3	7-18	Antero Midstream, LLC	387/708	116.54
4	7-12.1	James R. Fraley, Jr.	459/86	4.00
5	7-19	James R. Fraley, Jr.	459/86	2.60
6	8-53	Charter McKinney Heirs	69/311	13.00
7	8-24	Robert Sponaugle	248/81	13.00
8	8-31	Jacqueline D. & Gayford A. Cox	469/369	53.75
9	8-31.1	Jackson H. & Doris Todd Calhoun	365/647	41.92
10	8-25	Robert Bousman	282/129	15.14
11	8-40	Spencer Enterprise, LLC	261/512	11.06
12	8-48	James B. Lambert	152/384	20.15
13	8-40.4	Kristen Thomas	362/507	0.81
14	8-40.3	Jonathan M. Johnson	305/616	0.48
15	8-40.2	Sharon K. & Robert W. Sponaugle	W37/387	0.56
16	8-40.1	Melanie A. & Benjamin M. Blair	330/195	0.56
17	8-45.1	Jeffery K II & Brenda L. Carder	364/431	0.33
18	8-44	Wesleyan Methodist Church	30/249	0.05
19	8-46	Rock Run Allegheny Wesleyan Church	167/46	0.66
20	8-47	David E. & Amy Jo Sponaugle	440/479	0.25
21	8-49	David E. & Amy Jo Sponaugle	233/220	14.33
22	8-45	Tensil D. Davis	312/177	20.89
23	12-4	Sharon E. Walker & Ronald J. Burns	259/365	18.70
24	12-6	Rossie & Eva Lowery, et al	258/336	15.30
25	12-7	Harold F. Robinson, et al	196/331	26.00
26	12-23	Rossie & Eva Lowery	258/336	14.63
27	12-24	Harold F. Robinson, et al	196/331	0.75
28	12-101	WV Railroad Maintenance Authority	216/166	11.30
29	12-103	Barnes Siblings Property, LLC	471/545	43.11
30	12-51	Key Oil Co., et al	259/283	43.70
31	12-64	Frank L. Butler, et al	259/275	34.13
32	12-64.2	Frank L. Butler, et al	259/275	0.55
33	12-65	James T. & Claire A. Robinson, et al	436/695	10.86
34	12-72	James T. & Claire A. Robinson, et al	436/695	35.96
35	12-72.10	Doddridge County Board of Education	214/427	18.45
36	12-72.4	Doddridge County 4-H Association	162/441	44.30
37	12-72.14	Doddridge County Board of Education	222/599	10.38
38	12-72.11	Doddridge County Board of Education	214/383	3.03
39	16-72.1	William H Knisely, III	244/117	27.27
40	16-21	Dustin Underwood & Matthew Samer	309/252	27.27
41	16-3	Marie E. Gassaway	249/661	10.00
42	16-22	William H Knisely, III	247/201	27.27
43	16-7	Doddridge County Park & Recreation	304/437	179.23
44	16-17	I.L. Morris	230/307	108.59



FILE NO: 46-30-WU-14  
 DRAWING NO: McKean 2H As-Drilled  
 SCALE: 1" = 2000'  
 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 20 2022  
 OPERATOR'S WELL NO. McKean Unit 2H  
 API WELL NO  
 47 -- 017 -- 06915  
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built: 1,189' WATERSHED: Middle Island Creek QUADRANGLE: BH: Smithburg TH: West Union  
 DISTRICT: West Union Antero COUNTY: Doddridge  
 SURFACE OWNER: Midstream, LLC Alton J. Childers, et al; WVDNR WV State Rail Authority; C.M. Tate, et ux; Grace Evelyn Bunner; Jackson V. Moffat; Franklin L. Butler & Key Oil Co.; Rossie & Eva Lowery; Charles A. McKinney; Robert W. Sponaugle; Betty Lou Calhoun; ACREAGE: 45.8  
 ROYALTY OWNER: William A. Farr; James R. Fraley, et ux; W.L. Davis, et ux; AMP Fund III, LP; LEASE NO: ACREAGE: 40.37; 34.53125;  
 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: 22,956' MD 6,826' TVD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Kevin Ellis  
 ADDRESS: 1615 Wynkoop Street ADDRESS: 535 White Oak Blvd.  
 Denver, CO 80202 Bridgeport, WV 26330

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