

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

API 47-095 - 02539 County Tyler District Meade  
Quad Middlebourne 7.5' Pad Name Rush Fork Pad Field/Pool Name -----  
Farm name Joseph R. Rymer Jr. Well Number Gauge 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 4363056m Easting 502629m  
Landing Point of Curve Northing 4361463.61m Easting 503417.83m  
Bottom Hole Northing 4359666m Easting 504094m

Elevation (ft) 986' 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 RECEIVED  
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Mud - Polymer WV Department of Environmental Protection  
Date permit issued 11/9/2018 Date drilling commenced 12/25/2018 Date drilling ceased 4/22/2019  
Date completion activities began 9/18/2019 Date completion activities ceased 11/22/2019  
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 30, 81 Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1461, 1485, 1510 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:  
*[Signature]*  
9/17/2020

API 47-095 - 02539

Farm name Joseph R. Rymer Jr.

Well number Gauge 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	24"	20"	95'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	352'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2632'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	18491'	New	23#, HCP-110	N/A	Y
Tubing		2-3/8"	6391'		4.7#, P-110		
Packet 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	300 SX	15.6	1.18	241	0'	8 Hrs.
Surface	Class A	373 SX	15.6	1.20	635	0'	8 Hrs.
Coal							
Intermediate 1	Class A	890 SX	15.6	1.19	1082	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	792 SX (Lead) 3265 SX (Tail)	14.5 (Lead), 16.2(Tail)	1.4 (Lead), 1.6 (Tail)	3003	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 18751' MD, 6308' TVD (BHL), 6310' (Deepest Point Drilled)

Loggers TD (ft) 18751' MD

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

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Kick off depth (ft) 5600'

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Check all wireline logs run

caliper  density  deviated/directional  induction  temperature  sonic  
 neutron  resistivity  gamma ray

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Well cored  Yes  No

Conventional Sidewall

Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING

Conductor - 0

Surface - 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface

Intermediate - 1 above float joint, 1 above float collar, 1 every 4th joint to surface

Production - 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE  Yes  No

DETAILS

WAS WELL COMPLETED OPEN HOLE?  Yes  No

DETAILS

WERE TRACERS USED  Yes  No

TYPE OF TRACER(S) USED N/A

API 47-095 - 02539 Farm name Joseph R. Rymer Jr. Well number Gauge 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 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)
<b>*PLEASE SEE ATTACHED EXHIBIT 2</b>								

**\*PLEASE SEE ATTACHED EXHIBIT 2**


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Please insert additional pages as applicable.

API 47- 095 - 02539 Farm name Joseph R. Rymer Jr. Well number Gauge Unit 2H

**PRODUCING FORMATION(S)**

**DEPTHS**

Marcellus 6151' (TOP) TVD 6429' (TOP) MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow  Flow  Pump

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 9834 mcfpd 481 bpd --- bpd NGL 4689 bpd Water 4689 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT	BOTTOM DEPTH IN FT	TOP DEPTH IN FT	BOTTOM DEPTH IN FT	MD	MD	TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
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**\*PLEASE SEE ATTACHED EXHIBIT 3**


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Please insert additional pages as applicable.

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

Logging Company KLX Energy Services  
Address 6072 W Veterans Memorial Hwy City Bridgeport State WV Zip 26330

Cementing Company Schlumberger Oilfield Services  
Address 300 Schlumberger Dr City Sugarland State TX Zip 77478

Stimulating Company CalFrac Well Services  
Address 171 17th Street, Suite 1445 City Denver State CO Zip 80202

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223  
Signature  Title Permitting Agent Date 4-9-20

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

API 47-095-02539 Farm Name Joseph R. Rymur Jr., Well Number Gauge Unit 2H

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/11/2019	18385	18341	60	Marcellus
2	9/12/2019	18303.565	18138.39	60	Marcellus
3	9/12/2019	18102.955	17937.78	60	Marcellus
4	9/12/2019	17902.345	17737.17	60	Marcellus
5	9/13/2019	17701.735	17536.56	60	Marcellus
6	9/13/2019	17501.125	17335.95	60	Marcellus
7	9/13/2019	17300.515	17135.34	60	Marcellus
8	9/14/2019	17099.905	16934.73	60	Marcellus
9	9/14/2019	16899.295	16734.12	60	Marcellus
10	9/14/2019	16698.685	16533.51	60	Marcellus
11	9/15/2019	16498.075	16332.9	60	Marcellus
12	9/15/2019	16297.465	16132.29	60	Marcellus
13	9/15/2019	16096.855	15931.68	60	Marcellus
14	9/15/2019	15896.245	15731.07	60	Marcellus
15	9/16/2019	15695.635	15530.46	60	Marcellus
16	9/16/2019	15495.025	15329.85	60	Marcellus
17	9/16/2019	15294.415	15129.24	60	Marcellus
18	9/17/2019	15093.805	14928.63	60	Marcellus
19	9/17/2019	14893.195	14728.02	60	Marcellus
20	9/17/2019	14692.585	14527.41	60	Marcellus
21	9/17/2019	14491.975	14326.8	60	Marcellus
22	9/18/2019	14291.365	14126.19	60	Marcellus
23	9/18/2019	14090.755	13925.58	60	Marcellus
24	9/18/2019	13890.145	13724.97	60	Marcellus
25	9/18/2019	13689.535	13524.36	60	Marcellus
26	9/19/2019	13488.925	13323.75	60	Marcellus
27	9/19/2019	13288.315	13123.14	60	Marcellus
28	9/19/2019	13087.705	12922.53	60	Marcellus
29	9/19/2019	12887.095	12721.92	60	Marcellus
30	9/20/2019	12686.485	12521.31	60	Marcellus
31	9/20/2019	12485.875	12320.7	60	Marcellus
32	9/20/2019	12285.265	12120.09	60	Marcellus
33	9/20/2019	12084.655	11919.48	60	Marcellus
34	9/21/2019	11884.045	11718.87	60	Marcellus
35	9/21/2019	11683.435	11518.26	60	Marcellus
36	9/21/2019	11482.825	11317.65	60	Marcellus
37	9/21/2019	11282.215	11117.04	60	Marcellus
38	9/22/2019	11081.605	10916.43	60	Marcellus
39	9/22/2019	10880.995	10715.82	60	Marcellus
40	9/22/2019	10680.385	10515.21	60	Marcellus
41	9/22/2019	10479.775	10314.6	60	Marcellus
42	9/23/2019	10279.165	10113.99	60	Marcellus
43	9/23/2019	10078.555	9913.38	60	Marcellus
44	9/23/2019	9877.945	9712.77	60	Marcellus
45	9/23/2019	9677.335	9512.16	60	Marcellus
46	9/24/2019	9476.725	9311.55	60	Marcellus
47	9/24/2019	9276.115	9110.94	60	Marcellus
48	9/24/2019	9075.505	8910.33	60	Marcellus
49	9/24/2019	8874.895	8709.72	60	Marcellus
50	9/25/2019	8674.285	8509.11	60	Marcellus
51	9/25/2019	8473.675	8308.5	60	Marcellus
52	9/25/2019	8273.065	8107.89	60	Marcellus
53	9/25/2019	8072.455	7907.28	60	Marcellus
54	9/25/2019	7871.845	7706.67	60	Marcellus
55	9/26/2019	7671.235	7506.06	60	Marcellus
56	9/26/2019	7470.625	7305.45	60	Marcellus
57	9/26/2019	7270.015	7104.84	60	Marcellus
58	9/26/2019	7069.405	6904.23	60	Marcellus
59	9/27/2019	6868.795	6703.62	60	Marcellus
60	9/27/2019	6668.185	6503.01	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	9/11/2019	75.09225	7820.367	7063	4018	160980	4667	N/A
2	9/12/2019	74.65713	8127.823	5586	4454	405140	8850	N/A
3	9/12/2019	82.82327	8322.108	5588	4107	412180	9029	N/A
4	9/12/2019	80.54879	8414.914	5490	4164	406840	8865	N/A
5	9/13/2019	78.33645	8179.167	5561	4011	406220	8809	N/A
6	9/13/2019	77.1221	8183.046	5674	3679	403060	8812	N/A
7	9/13/2019	85.94199	8351.963	5111	4404	406160	8868	N/A
8	9/14/2019	77.74618	8073.522	6403	4636	397940	8732	N/A
9	9/14/2019	79.83806	8053.26	5251	4018	406180	8832	N/A
10	9/14/2019	76.30485	8400.014	5252	3886	406180	8760	N/A
11	9/15/2019	77.82333	8567.312	5301	4574	401040	8713	N/A
12	9/15/2019	82.37777	8245.07	6340	3854	397260	8413	N/A
13	9/15/2019	80.15758	8400.028	5333	4281	408180	8582	N/A
14	9/15/2019	83.45766	8438.758	5035	4630	406570	8623	N/A
15	9/16/2019	80.12367	8207.753	6001	4585	409280	8749	N/A
16	9/16/2019	81.99927	8300.339	4703	4655	412460	8571	N/A
17	9/16/2019	84.32182	8479.834	5219	4229	409960	8652	N/A
18	9/17/2019	86.76534	8449.962	6015	4140	406560	8509	N/A
19	9/17/2019	83.87212	8282.696	6822	4492	407520	8502	N/A
20	9/17/2019	82.79507	8256.008	6726	4012	401700	8432	N/A
21	9/17/2019	84.71475	8264.228	3194	4646	401420	8430	N/A
22	9/18/2019	83.85259	8316.005	4828	4593	407720	8488	N/A
23	9/18/2019	84.7585	8290.569	6853	4576	406500	8573	N/A
24	9/18/2019	86.03964	8413.673	6603	4744	405900	8448	N/A
25	9/18/2019	85.39825	8299.405	5480	5100	410080	8501	N/A
26	9/19/2019	86.37281	8518.016	5481	3861	410980	8495	N/A
27	9/19/2019	84.3	8299	5915	4120	410580	8459	N/A
28	9/19/2019	80.5	8188	6231	3832	411980	8585	N/A
29	9/19/2019	86.41671	7996.772	5506	4020	405820	8908	N/A
30	9/20/2019	83.98852	8273.83	5487	3701	403200	8318	N/A
31	9/20/2019	85.26089	7950.933	6014	3664	404980	8628	N/A
32	9/20/2019	85.44446	8219.258	5869	3718	402600	8505	N/A
33	9/20/2019	83.20607	8116.818	5219	3946	401060	8372	N/A
34	9/21/2019	82.58966	8338.556	5560	4290	404340	8435	N/A
35	9/21/2019	83.5	8114	5314	3972	404200	8505	N/A
36	9/21/2019	76.7	7646	5575	3937	403560	8338	N/A
37	9/21/2019	86.32162	8532.056	5250	3988	406140	8627	N/A
38	9/22/2019	82.93767	8374.945	5464	3985	409020	8492	N/A
39	9/22/2019	84.26517	8111.079	5869	3833	408220	8512	N/A
40	9/22/2019	83.11317	7779.176	5369	3792	407980	8336	N/A
41	9/22/2019	85.63342	7879.081	5315	3812	406890	8417	N/A
42	9/23/2019	85.96845	7932.687	5261	3838	405940	8461	N/A
43	9/23/2019	85.2	7953	5637	3820	401260	8417	N/A
44	9/23/2019	84.4	8007	5405	3851	405900	8259	N/A
45	9/23/2019	85.33198	8128.993	5507	3924	401100	8327	N/A
46	9/24/2019	86.10659	8116.906	4841	3830	411440	8429	N/A
47	9/24/2019	85.19453	7939.998	5602	3711	408400	8326	N/A
48	9/24/2019	86.80776	7955.324	6169	3526	406860	8301	N/A
49	9/24/2019	87.98032	8079.196	5846	3735	402820	8343	N/A
50	9/25/2019	88.69353	8061.886	5812	3563	410320	8415	N/A
51	9/25/2019	86.1081	7493.257	5269	3580	408880	8502	N/A
52	9/25/2019	82.1743	7805.998	5212	3582	395520	8132	N/A
53	9/25/2019	89.4	7854	5822	3665	395580	8301	N/A
54	9/25/2019	87.6	7634	5455	3931	395400	8326	N/A
55	9/26/2019	85.34	7747.066	5955	3549	401900	8352	N/A
56	9/26/2019	85.11553	7332.167	5121	3369	403700	8262	N/A
57	9/26/2019	84.92925	7493.29	5310	3437	403560	8223	N/A
58	9/26/2019	88.3	7411	5194	3956	401800	8177	N/A
59	9/27/2019	89.1	7467	5720	3767	401920	8220	N/A
60	9/27/2019	85.62122	6887.706	5328	3328	400480	8279	N/A
	AVG=	82	8,264	5,671	4,223	13,153,230	280,680	TOTAL

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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	
Sandstone	0		215		0		215	
Sandy Siltstone	215		385		215		385	
Shaly Siltstone	385		585		385		585	
Silty sandstone	585		625		585		625	
Shaly Siltstone	625		745		625		745	
Silty sandstone	745		805		745		805	
Sandy Siltstone	805		865		805		865	
Shaly Siltstone	865		985		865		985	
Silty Shale	985		1,185		985		1,185	
Silty Sandstone	1,185		1,475		1,185		1,475	
Sandstone	1,475		1,645		1,475		1,645	
Sandy Siltstone	1,645		1,745		1,645		1,745	
Silty sandstone	1,745		1,811		1,745		1,842	
Big Lime	1,826		2,730		1,817		2,757	
Fifty Foot Sandstone	2,730		2,841		2,732		2,869	
Gordon	2,841		3,186		2,844		3,220	
Fifth Sandstone	3,186		3,375		3,195		3,411	
Bayard	3,375		4,002		3,386		4,048	
Speechley	4,002		4,270		4,023		4,321	
Balltown	4,270		4,502		4,296		4,557	
Bradford	4,502		4,732		4,532		4,790	
Benson	4,732		4,880		4,765		4,941	
Alexander	4,880		6,065		4,916		6,229	
Sycamore	5,941		6,040		6,056		6,204	
Middlesex	6,040		6,129		6,204		6,385	
Burkett	6,129		6,147		6,385		6,435	
Tully	6,147		6,155		6,435		6,456	
Marcellus	6,155		NA		6,456		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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# ANTERO RESOURCES CORPORATION

Location: Tyler County, WV

Field: Tyler

Facility: Rush Fork Pad

Wellbore: Gauge Unit 2H PWB

Well: Gauge Unit 2H

Well: Gauge Unit 2H

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Plot reference wellbore is Gauge Unit 2H PWP Rev-A-0	Grid System: NAD27 / UTM Zone 17 North, US Feet
True vertical depths are referenced to H&P 317 (RKB)	North Reference: Grid north
Measured depths are in feet	Scale: True distance
H&P 317 (RKB) to Mean Sea Level: 1011.5 feet	Depths are in feet
Mean Sea Level to Ground level [At Slot: Slot #06]	Created by: delbert on 2019-04-25
Coordinates are in feet referenced to Slot	Database: WVA_MPL_EasternUS_Datm

Facility Name	Rush Fork Pad	Latitude	38°25'01.492"N	Longitude	80°58'10.578"W
Slot	H&P 317 (RKB) to Ground level [At Slot: Slot #06]	Local E (ft)	-7.20	Local N (ft)	25.5ft
Mean Sea Level to Ground level [At Slot: Slot #06]	1011.5ft	Local E (ft)	-888ft	Local N (ft)	1011.5ft

Design/Comment	MD (ft)	Inc. (%)	Az. (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (1/100ft)	VS (ft)
The On	5980.50	25.710	152.870	5905.28	594.01	564.01	10.87	-398.53
Proj. To Bottom	5902.50	58.314	155.719	6110.84	319.39	684.83	8.08	-97.55
End of 3D Arc	6475.82	174.725	160.158	8184.00	173.98	743.38	8.08	88.84
POE	6690.83	90.000	160.159	8218.00	-24.84	819.12	8.50	300.02
Landing Pt.	18534.50	90.000	160.159	8218.00	-11165.48	4834.90	0.00	12143.89

Well Data	Well	Gauge Unit 2H	Gauge Unit 2H	Gauge Unit 2H
Wellbore	Well	Gauge Unit 2H AWP	Gauge Unit 2H PWB	Gauge Unit 2H PWP Rev-A-0
Well	Well	Gauge Unit 2H AWP	Gauge Unit 2H PWB	Gauge Unit 2H PWP Rev-A-0

Well Data	Well	Gauge Unit 2H	Gauge Unit 2H	Gauge Unit 2H
Wellbore	Well	Gauge Unit 2H AWP	Gauge Unit 2H PWB	Gauge Unit 2H PWP Rev-A-0
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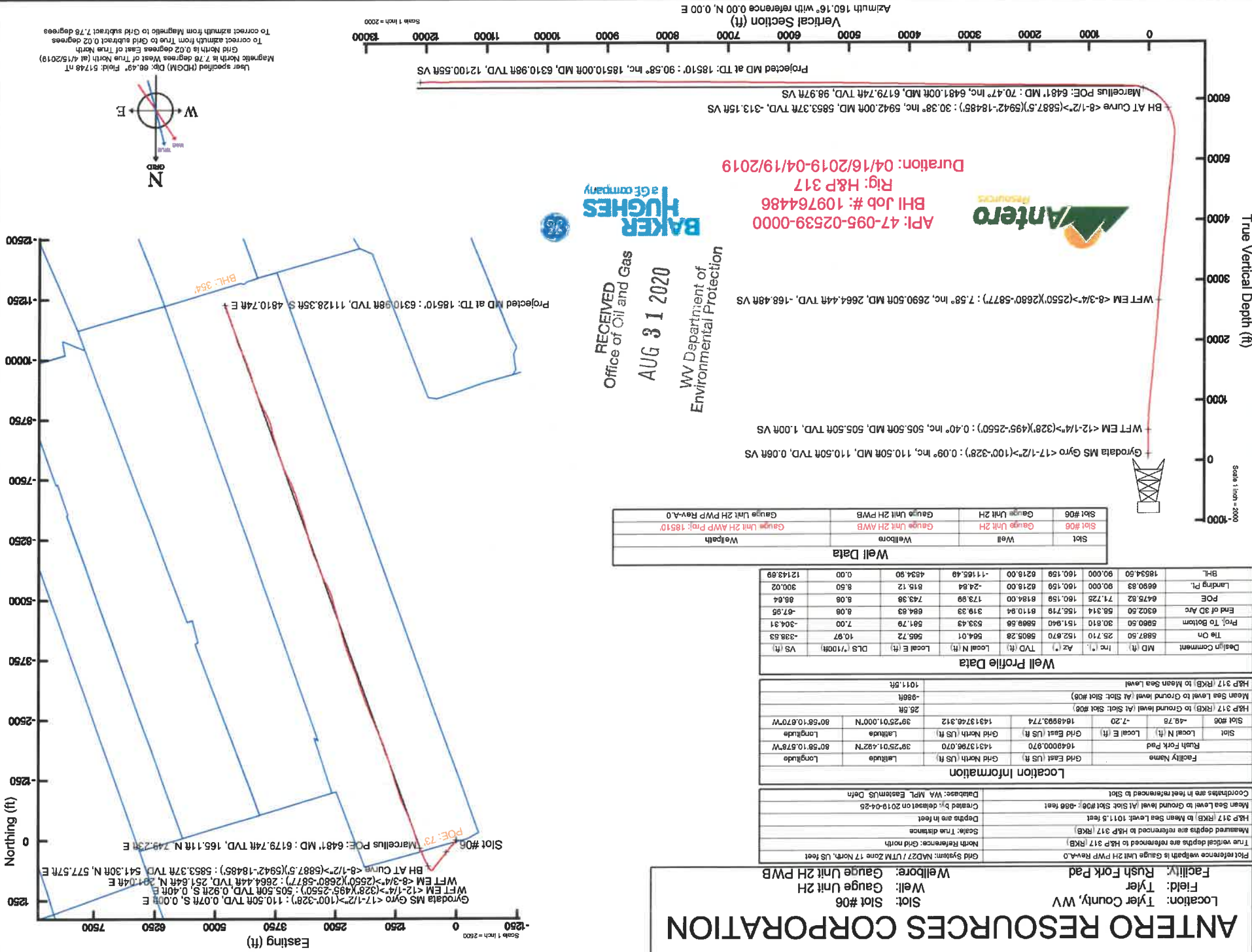
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Office of Oil and Gas  
AUG 31 2020  
WV Department of  
Environmental Protection



**BAKER**  
Hughes  
a GE company



API: 47-095-02539-0000  
BHI Job #: 109764486  
Rig: H&P 317  
Duration: 04/16/2019-04/19/2019







	Hydrochloric Acid	CWS	Clean Perforations		Listed Below			
	CI-9100G	CWS	Corrosion Inhibitor		Listed Below			
	Calbreak 5501	CWS	Breaker		Listed Below			
	Sand (Proppant)	CWS	Propping Agent		Listed Below			
	DAP-103	CWS	Iron Control		Listed Below			
					Listed Below			
	Sanifrac 8844	CWS	Bioicide		Listed Below			
					Listed Below			
	CalGel 4000	CWS	Gel Slurry		Listed Below			
					Listed Below			
	Other Chemical (s)	Listed Above	See Trade Name (s) List		Listed Below			
RECEIVED Office of Oil and Gas AUG 31 2020 WV Department of Environmental Protection								
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	11.58847		
			Illite	12173-60-3	1.00000	0.11588		

	0.05352	37.00000	7647-01-0	Hydrochloric acid		
	0.01432	30.00000	69418-26-4	Copolymer of 2-propanamide		
	0.01159	0.10000	64476-38-6	Apatite		
	0.01159	0.10000	98072-94-7	Ilmenite		
	0.01159	0.10000	1310-14-1	Goethite		
	0.01159	0.10000	1302-27-8	Biotite		
	0.00958	60.00000	9000-30-0	Guar gum		
	0.00958	60.00000	64742-46-7	Distillates (petroleum), hydrotreated middle		
	0.00955	20.00000	64742-47-8	Distillates (petroleum), hydrotreated light		
	0.00593	54.50000	25322-68-3	Polyethylene glycol mixture		
	0.00382	8.00000	12125-02-9	Ammonium chloride		
	0.00218	20.00000	10222-01-2	2,2-Dibromo-3-Nitriopropionamide		
	0.00095	2.00000	93-83-4	Oleic Acid Diethanolamide		
	0.00080	5.00000	68953-58-2	Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite		
	0.00048	60.00000	77-92-9	Citric acid		
	0.00044	4.00000	7647-15-6	Sodium bromide		
	0.00033	3.00000	3252-43-5	Dibromoacetone		
	0.00024	100.00000	7727-54-0	Ammonium Persulfate		
	0.00024	1.50000	37251-67-5	Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether		
	0.00005	20.00000	25038-72-6	Vinylidene chloride-methyl acrylate copolymer		
	0.00003	40.00000	107-21-1	Ethylene Glycol		
	0.00001	10.00000	68131-39-5	Ethoxylated Alcohols		
	0.00001	5.00000	67-63-0	Isopropyl alcohol		

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			104-55-2	Cinnamaldehyde	10.00000	0.00001
			72480-70-7	Tar bases, quinolone derivs, benzyl chloride- quatenized	10.00000	0.00001
			34590-94-8	Diethylene glycol, monomethyl ether	20.00000	0.00001
			64-18-6	Formic acid	10.00000	0.00001

\* 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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Office of Oil and Gas

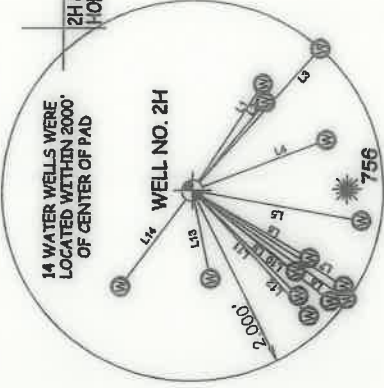
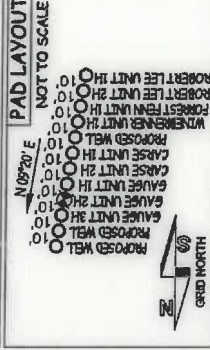
AUG 31 2020

WV Department of  
Environmental Protection

**Antero Resources Corporation**  
Well No. Gauge Unit 2H

**AS DRILLED DATA:**  
WELL 2H TOP HOLE INFORMATION:  
N: 337,366ft E: 1,384,813ft  
LAT: 39°25'01.00" LON: 80°58'10.67"  
BOTTOM HOLE INFORMATION:  
N: 326,160ft E: 1,589,437ft  
LAT: 39°23'11.00" LON: 80°57'09.45"  
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. MEASUREMENTS TAKEN WITH TRIMBLE 660XT 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 2H TOP HOLE INFORMATION:  
N: 4,363,056m E: 502,629m  
BOTTOM HOLE INFORMATION:  
N: 4,359,666m E: 504,094m



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 PLC  
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 17-023WA  
DRAWING # GAUGEHAD  
SCALE 1" = 2000'  
MINIMUM DEGREE OF ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

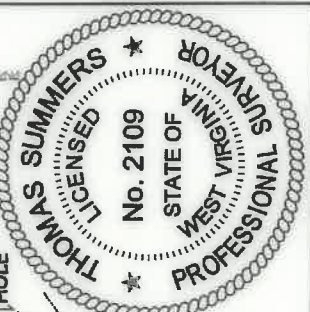
STATE OF WEST VIRGINIA  
DEPARTMENT OF ENERGY  
DIVISION OF OIL AND GAS

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL  
(IF "GAS") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X  
LOCATION: ELEVATION 986' - AS BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK QUADRANGLE MIDDLEBOURNE 7.5 SURFACE OWNER JOSEPH R. RYMER JR. OIL & GAS ROYALTY OWNER HOWARD HARGRA III; SHAWNARAY HUFFMAN ET UX; FORREST MILLER; KENNETH JONES; LEASE ACREAGE 44.33 AC ± 15 AC ± 84.88 AC ± 85.5 AC ± JAMIE DENON TRUST; CARL JACK WILCOX; THOMAS W. MOORE ET AL; ALLEN SMITH; JOE LYNN FAMILY PRESERVATION TRUST; 620.45 AC ± 86.3 AC ± 129.86 AC ± 109.11 AC ± 149.18 AC ± 88.14 AC ± 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 MARCELLUS ESTIMATED DEPTH 6,311' TVD 18,510' MD TARGET FORMATION ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM WELL OPERATOR 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313 FORM WW-6

LATITUDE 39°27'30" LONGITUDE 80°55'00"  
10,164' TO BOTTOM HOLE  
3,191'  
11,029' TO BOTTOM HOLE  
LONGITUDE 80°57'30"

8-21	Alan Moore	357/198	105,99 AC
8-22	Alan Moore	439/176	147 AC
8-23	Alan Moore	329/133	147 AC
8-24	Wanda Smith	359/127	181 AC
8-25	Donald Johnson	330/171	91,07 AC
8-26	Henry Moore	347/151	42,29 AC
8-27	Henry Moore	211/770	4,28 AC
8-28	Henry Moore	343/168	105 AC
8-29	Henry Moore	356/166	73 AC
8-30	William	349/110	4 AC
8-31	Omni Church of Jesus Christ	383/159	84,23 AC
8-32	Gert	327/131	15 AC
8-33	Henry Moore	339/118	44,83 AC
8-34	Henry Moore	350/112	61 AC
8-35	Henry Moore	337/124	18,10 AC
8-36	David Smith	327/172	19 AC
8-37	Henry Moore	260/157	3,08 AC
8-38	Henry Moore	365/199	35 AC
8-39	Henry Moore	376/191	40,91 AC
8-40	Henry Moore	354/181	67,97 AC
8-41	Henry Moore	294/151	2,97 AC
8-42	Daniel Lennartz	283/144	51,59 AC
8-43	Thomas Moore	310/218	192,86 AC
8-44	Thomas Moore	307/149	19,11 AC
8-45	Thomas Moore	359/182	93,78 AC
8-46	Henry Moore	337/124	18,10 AC
8-47	Henry Moore	339/118	44,83 AC
8-48	Henry Moore	379/194	83,14 AC
8-49	Henry Moore	349/115	41,89 AC
8-50	Terry Stiller	312/151	8 AC
8-51	Terry Stiller	312/151	73,49 AC
8-52	Henry Moore	352/173	62,86 AC
8-53	Henry Moore	349/115	73,08 AC
8-54	Henry Moore	297/168	14 AC
8-55	Henry Moore	333/151	17 AC
8-56	Henry Moore	332/154	71,79 AC
8-57	Henry Moore	383/181	41,06 AC

LINE	BEARING	DISTANCE
L1	S 65°09' E	1387.27
L2	S 80°48' E	1190.07
L3	S 85°14' E	1993.31
L4	S 20°48' E	1488.07
L5	S 10°14' W	7198.2
L6	S 28°28' W	1421.07
L7	S 35°14' W	1078.9
L8	S 37°02' W	1313.1
L9	S 44°27' W	1824.7
L10	S 45°27' W	1041.2
L11	S 45°10' W	845.2
L12	S 45°10' W	1203.7
L13	S 45°10' W	845.2
L14	N 53°07' W	1203.7



**NOTES**  
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 (225) FEET OF THE CENTER OF THE WELL PAD.  
2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ANTERO.  
3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESPONSE TO REQUESTING 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.

COUNTY NAME \_\_\_\_\_ PERMIT \_\_\_\_\_  
STATE COUNTY \_\_\_\_\_  
DISTRICT MEADE COUNTY TYLER  
ACREAGE 44.33 ACRES +/-  
LEASE ACREAGE 44.33 AC ± 15 AC ± 84.88 AC ± 85.5 AC ±  
FRACTURE OR STIMULATE  
CLEAN OUT & REPLUG  
6,311' TVD 18,510' MD  
DIANNA STAMPER - CT CORPORATION SYSTEM  
5400 D BIG TYLER ROAD  
CHARLESTON, WV 25313



LATITUDE 39°27'30"

3,191'

10,164' TO BOTTOM HOLE

LATITUDE 39°25'00"

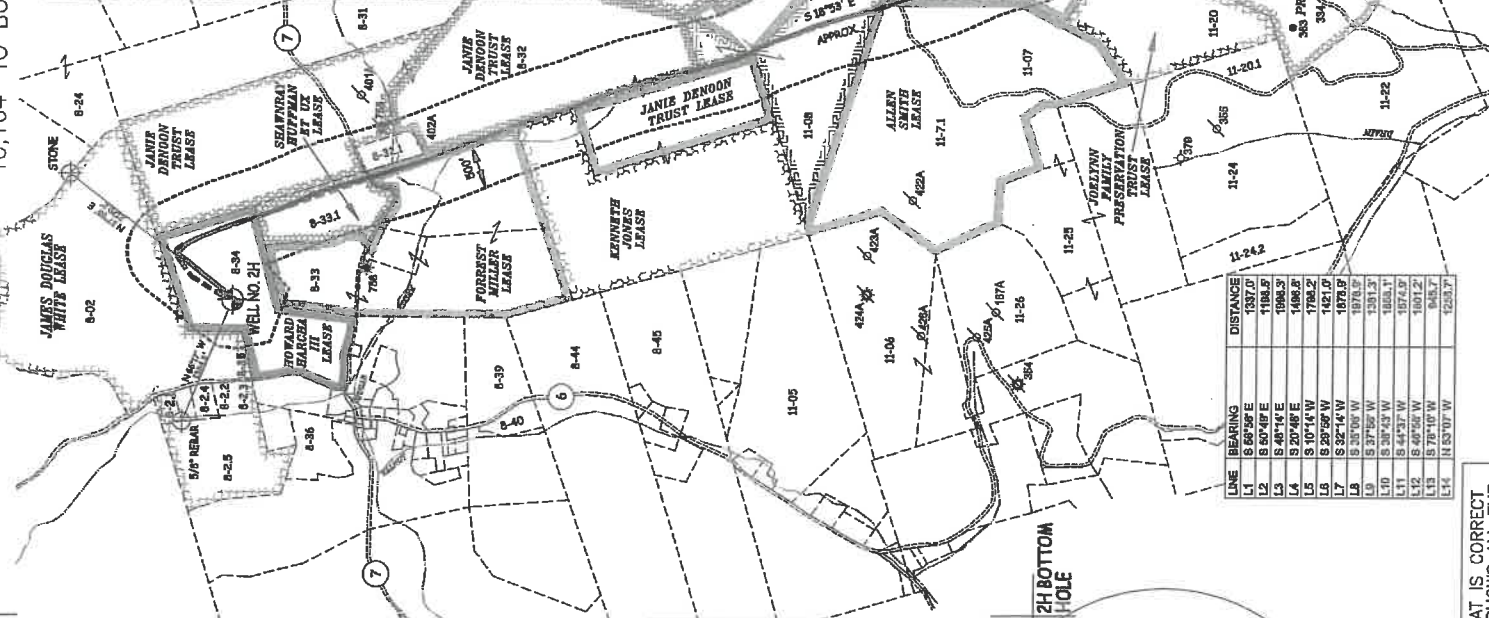
LONGITUDE 80°55'00"

15,075'

11,029' TO BOTTOM HOLE

LONGITUDE 80°57'30"

8-02	Clara Moore	330/138	303.99 AC
8-03	Allen Moore	590/217	127.2 AC
8-04	Walter Smith	304/27	1.8 AC
8-05	Walter Smith	304/27	1.8 AC
8-06	Donald Robinson	310/471	90.07 AC
8-07	Nancy McAfee	347/285	22.59 AC
8-08	Nancy McAfee	288/270	44.28 AC
8-09	Clark Wallace	343/656	300 AC
8-10	William Dawson	336/626	79 AC
8-11	William Dawson	336/626	282.2 AC
8-12	Clara Moore	340/318	4.7 AC
8-13	Clara Moore	321/333	18.14 AC
8-14	Joseph Hester	338/238	44.33 AC
8-15	Charles Moore	365/562	0.29 AC
8-16	Thomas Wall	591/234	19.30 AC
8-17	Donald Clark	437/939	11 AC
8-18	Jerry Leavitt	327/772	39 AC
8-19	Eric Johnson	352/628	39 AC
8-20	Eric Johnson	352/628	39 AC
8-21	Eric Johnson	352/628	39 AC
8-22	Eric Johnson	352/628	39 AC
8-23	Eric Johnson	352/628	39 AC
8-24	Eric Johnson	352/628	39 AC
8-25	Eric Johnson	352/628	39 AC
8-26	Eric Johnson	352/628	39 AC
8-27	Eric Johnson	352/628	39 AC
8-28	Eric Johnson	352/628	39 AC
8-29	Eric Johnson	352/628	39 AC
8-30	Eric Johnson	352/628	39 AC
8-31	Eric Johnson	352/628	39 AC
8-32	Eric Johnson	352/628	39 AC
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8-36	Eric Johnson	352/628	39 AC
8-37	Eric Johnson	352/628	39 AC
8-38	Eric Johnson	352/628	39 AC
8-39	Eric Johnson	352/628	39 AC
8-40	Eric Johnson	352/628	39 AC
8-41	Eric Johnson	352/628	39 AC
8-42	Eric Johnson	352/628	39 AC
8-43	Eric Johnson	352/628	39 AC
8-44	Eric Johnson	352/628	39 AC
8-45	Eric Johnson	352/628	39 AC
11-09	TESTAMENTARY TRUST		
11-10	TRUSTS OF JAMES W. MOORE ET AL		
11-11	TRUSTS OF JAMES W. MOORE ET AL		
11-12	TRUSTS OF JAMES W. MOORE ET AL		
11-13	TRUSTS OF JAMES W. MOORE ET AL		
11-14	TRUSTS OF JAMES W. MOORE ET AL		
11-15	TRUSTS OF JAMES W. MOORE ET AL		
11-16	TRUSTS OF JAMES W. MOORE ET AL		
11-17	TRUSTS OF JAMES W. MOORE ET AL		
11-18	TRUSTS OF JAMES W. MOORE ET AL		
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11-22	TRUSTS OF JAMES W. MOORE ET AL		
11-23	TRUSTS OF JAMES W. MOORE ET AL		
11-24	TRUSTS OF JAMES W. MOORE ET AL		
11-25	TRUSTS OF JAMES W. MOORE ET AL		
11-26	TRUSTS OF JAMES W. MOORE ET AL		



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 AVE. PENNSBORO WEST VIRGINIA 26415

RECEIVED  
 Office of Oil and Gas  
 AUG 31 2020



JOB # 17-023WA  
 DRAWING # GAUGE2HAD  
 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 +/-  
 O Interior Surface Tracts +/-  
 O Proposed Well Path  
 O As Drilled Well Path

THOMAS SUMMERS P.S. 2109  
 DATE 03/09/20  
 OPERATOR'S WELL # GAUGE UNIT #2H

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL  
 (IF "GAS") PRODUCTION X STORAGE X DEEP X SHALLOW X  
 LOCATION: ELEVATION 986' AS BUILT WATERSHED QUADRANGLE MIDDLEBOURNE 7.5' DISTRICT MEADE COUNTY TYLER ACREAGE 44.33 ACRES +/-  
 SURFACE OWNER JOSEPH R. RYMER JR.  
 OIL & GAS ROYALTY OWNER HOWARD HARGRA III; SHAWN RAY HUFFMAN ET UX; FORREST MILLER; KENNETH JONES; LEASE ACREAGE 44.33 AC +/- 15 AC +/- 84.88 AC +/- 65.5 AC +/-  
 JANE DENDON TRUST; JANE DENDON TRUST; CARL JACK WILCOX; THOMAS W. MOORE ET AL; ALLEN SMITH; JOE LYNN FAMILY PRESERVATION TRUST; 620.45 AC +/- 65.3 AC +/- 128.88 AC +/- 109.11 AC +/- 149.18 AC +/- 88.14 AC +/-  
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER DRILL DEEPER REDRILL FRACTURE OR STIMULATE  
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL  
 (SPECIFY) AS DRILLED  
 TARGET FORMATION MARCELLUS  
 WELL OPERATOR ANTERO RESOURCES CORP. ESTIMATED DEPTH PLUG & ABANDON CLEAN OUT & REPLUG  
 ADDRESS 1615 WYNKOOP ST. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM 6311' TVD, 18.510' MD  
 FORM WW-6 DENVER, CO 80202

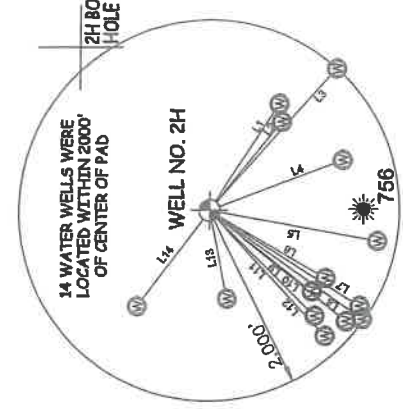
COUNTY NAME PERMIT  
 COUNTY COUNTY COUNTY COUNTY COUNTY  
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Antero Resources Corporation  
 Well No. Gauge Unit 2H

AS DRILLED DATA:  
 WELL 2H TOP HOLE INFORMATION:  
 N: 337,366ft E: 1,584,913ft  
 LAT: 39°25'01.00" LON: 80°58'10.67"  
 BOTTOM HOLE INFORMATION:  
 N: 326,160ft E: 1,589,437ft  
 LAT: 39°23'11.00" LON: 80°37'09.45"  
 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 2H TOP HOLE INFORMATION:  
 N: 4,363,056m E: 502,629m  
 BOTTOM HOLE INFORMATION:  
 N: 4,359,666m E: 504,094m

PAD LAYOUT  
 NOT TO SCALE



WY NORTH ZONE  
 GRID NORTH