APPROVED
NAME:
DATE: 8/16/17

WR-35
Rev. 8/23/13

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

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API 47 - 017 - 06425 County Doddridge District Grant

Quad Smithburg 7.5' Pad Name Misery Pad Field/Pool Name -----

Farm name Denzil C. Spencer et al Well Number Arthur 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 4356847m	Easting 521634m
Landing Point of Curve	Northing 4356938.55m	Easting 521320.54m
Bottom Hole	Northing 4359628m	Easting 520267m

Elevation (ft) 1001' 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 01/21/2014 Date drilling commenced 04/12/2015 Date drilling ceased 04/04/2016

Date completion activities began 08/13/2016 Date completion activities ceased 11/30/2016

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 475' Open mine(s) (Y/N) depths No

Salt water depth(s) ft 1477', 1511', 1675' Void(s) encountered (Y/N) depths No

Coal depth(s) ft 177', 257', 1542' Cavern(s) encountered (Y/N) depths No

Is coal being mined in area (Y/N) No

Reviewed by:

09/15/2017

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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"	53'	New	94#, J-55	N/A	Y
Surface	17-1/2"	13-3/8"	566'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2513'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16985'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7140'		4.7#, N-80		
Packer type and depth set		N/A					

Comment Details Cement plug on 03/16/2016

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ^{3}/sks)	Volume (ft ^{3})	Cement Top (MD)	WOC (hrs)
Conductor	Class A	150 sx	15.6	1.18	177	0'	8 Hrs.
Surface	Class A	715 sx	15.6	1.19	851	0'	8 Hrs.
Coal							
Intermediate 1	Class A	920 sx	15.6	1.19	1095	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	980 sx (Lead) 1653 sx (Tail)	14.5 (Lead), 15.2 (Tail)	1.2 (Lead), 1.84 (Tail)	4218	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16985' MD, 6745' TVD (BHL) & 6795' TVD (Deepest Point Drilled) Loggers TD (ft) 16953' MD

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

Plug back procedure N/A

Kick off depth (ft) 5823'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Anne Unit 2H API #47-017-06374). Please reference the wireline logs submitted with Form WR-35 for Anne Unit 2H. 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- 017 - 06425 Farm name Denzil C. Spencer et al Well number Arthur Unit 1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)

***PLEASE SEE ATTACHED EXHIBIT 1**

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)

***PLEASE SEE ATTACHED EXHIBIT 2**

Please insert additional pages as applicable.

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API 47- 017 - 06425 Farm name Denzil C. Spencer et al Well number Arthur Unit 1H

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6729' (TOP)	TVD	7192' (TOP)	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 15663 mcfpd Oil 127 bpd NGL --- bpd Water 706 bpd GAS MEASURED BY □ Estimated ■ Orifice □ Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)

*PLEASE SEE ATTACHED EXHIBIT 3

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Please insert additional pages as applicable.

Drilling Contractor Precision Drilling Company, LP
Address 2640 Reach Road City Williamsport State PA Zip 17701

Logging Company Rush Wellsite Services
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

Cementing Company Allied Oil & Gas Services, LLC
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 Samantha Klaas Telephone 303-357-6759
Signature Samantha Klaas Title Permitting Agent Date 07/14/2017

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

09/15/2017

API 47-017-06425 Farm Name Denzil C. Spencer et al Well Number Arthur Unit 1H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	8/13/2016	16720	16857	60	Marcellus
2	10/7/2016	16522	16689	60	Marcellus
3	10/8/2016	16324	16491	60	Marcellus
4	10/8/2016	16127	16293	60	Marcellus
5	10/9/2016	15929	16096	60	Marcellus
6	10/9/2016	15731	15898	60	Marcellus
7	10/10/2016	15534	15700	60	Marcellus
8	10/11/2016	15336	15503	60	Marcellus
9	10/11/2016	15138	15305	60	Marcellus
10	10/11/2016	14940	15107	60	Marcellus
11	10/11/2016	14743	14910	60	Marcellus
12	10/11/2016	14545	14712	60	Marcellus
13	10/12/2016	14347	14514	60	Marcellus
14	10/12/2016	14150	14316	60	Marcellus
15	10/12/2016	13952	14119	60	Marcellus
16	10/12/2016	13754	13921	60	Marcellus
17	10/13/2016	13557	13723	60	Marcellus
18	10/13/2016	13359	13526	60	Marcellus
19	10/14/2016	13161	13328	60	Marcellus
20	10/14/2016	12963	13130	60	Marcellus
21	10/14/2016	12766	12932	60	Marcellus
22	10/14/2016	12568	12735	60	Marcellus
23	10/15/2016	12370	12537	60	Marcellus
24	10/15/2016	12173	12339	60	Marcellus
25	10/15/2016	11975	12142	60	Marcellus
26	10/15/2016	11777	11944	60	Marcellus
27	10/16/2016	11580	11746	60	Marcellus
28	10/16/2016	11382	11549	60	Marcellus
29	10/16/2016	11184	11351	60	Marcellus
30	10/16/2016	10986	11153	60	Marcellus
31	10/16/2016	10789	10955	60	Marcellus
32	10/17/2016	10591	10758	60	Marcellus
33	10/17/2016	10393	10560	60	Marcellus
34	10/17/2016	10196	10362	60	Marcellus
35	10/18/2016	9998	10165	60	Marcellus
36	10/18/2016	9800	9967	60	Marcellus
37	10/18/2016	9603	9769	60	Marcellus
38	10/18/2016	9405	9572	60	Marcellus
39	10/19/2016	9207	9374	60	Marcellus
40	10/19/2016	9009	9176	60	Marcellus
41	10/19/2016	8812	8978	60	Marcellus
42	10/19/2016	8614	8781	60	Marcellus
43	10/20/2016	8416	8583	60	Marcellus
44	10/20/2016	8219	8385	60	Marcellus
45	10/20/2016	8021	8188	60	Marcellus
46	10/20/2016	7823	7990	60	Marcellus
47	10/20/2016	7626	7792	60	Marcellus
48	10/21/2016	7428	7595	60	Marcellus
49	10/21/2016	7230	7397	60	Marcellus

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API 47-017-06425 Farm Name Denzil C. Spencer et al Well Number Arthur Unit 1H

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	10/7/2016	76.4	8088	0	5205	350350	8955	N/A
2	10/7/2016	75.0	7723	5752	5452	349430	8506	N/A
3	10/8/2016	76.6	7784	6721	5325	349175	8646	N/A
4	10/8/2016	77.0	7755	6324	5577	349750	8477	N/A
5	10/9/2016	78.3	7816	5891	5154	351500	8682	N/A
6	10/9/2016	78.1	7967	5925	4693	350720	8646	N/A
7	10/10/2016	77.0	7899	5884	5037	350330	8183	N/A
8	10/11/2016	78.9	7721	6266	5387	350200	8153	N/A
9	10/11/2016	78.0	7853	5973	4814	349700	8357	N/A
10	10/11/2016	78.0	7873	6172	5032	350450	8137	N/A
11	10/11/2016	79.0	8037	6251	5364	350410	8124	N/A
12	10/11/2016	77.9	7674	6215	5104	349880	8117	N/A
13	10/12/2016	78.6	7549	6062	4610	349470	8099	N/A
14	10/12/2016	78.0	7731	6659	4687	350050	8310	N/A
15	10/12/2016	76.0	7930	6799	5432	349730	8106	N/A
16	10/12/2016	72.6	7881	6169	4775	338660	9809	N/A
17	10/13/2016	78.1	7658	5913	5338	349290	8062	N/A
18	10/13/2016	77.0	8051	6221	5531	349460	7965	N/A
19	10/14/2016	78.0	8070	5858	5353	290970	10134	N/A
20	10/14/2016	78.0	7843	6015	5335	349880	8045	N/A
21	10/14/2016	77.0	7791	5725	5280	349430	8039	N/A
22	10/14/2016	76.5	7669	6081	4768	349540	8042	N/A
23	10/15/2016	75.7	7536	6030	5166	352400	8083	N/A
24	10/15/2016	76.0	7918	5927	4398	349060	9336	N/A
25	10/15/2016	77.0	7629	5876	5503	349400	8014	N/A
26	10/15/2016	78.5	7631	6086	4613	349240	8003	N/A
27	10/16/2016	76.7	7449	6398	4941	351400	8068	N/A
28	10/16/2016	75.5	7736	5988	5147	350150	7998	N/A
29	10/16/2016	77.0	7788	5860	4073	349060	7969	N/A
30	10/16/2016	76.0	8084	6032	4421	349430	9826	N/A
31	10/16/2016	75.4	7345	6253	5313	349660	8185	N/A
32	10/17/2016	76.0	7770	5648	5229	344780	9508	N/A
33	10/17/2016	79.2	7576	5670	5893	348500	7935	N/A
34	10/17/2016	77.3	7576	5787	5402	349870	7937	N/A
35	10/18/2016	76.8	7195	6397	4953	349480	7946	N/A
36	10/18/2016	75.6	7836	5894	5492	347000	8845	N/A
37	10/18/2016	72.9	7879	5784	4452	293400	8570	N/A
38	10/18/2016	78.8	7563	5739	5513	350050	7823	N/A
39	10/19/2016	74.9	7624	6024	4560	314260	9450	N/A
40	10/19/2016	74.4	7496	5551	4369	348890	7876	N/A
41	10/19/2016	74.3	7848	6045	4708	343400	8860	N/A
42	10/19/2016	78.1	7265	6118	5339	349910	7881	N/A
43	10/20/2016	74.7	7548	6136	4810	350800	7903	N/A
44	10/20/2016	76.2	7516	5568	4872	349940	7858	N/A
45	10/20/2016	77.2	7456	5597	4746	349100	7842	N/A
46	10/20/2016	73.9	7512	6203	4810	349250	7834	N/A
47	10/20/2016	76.1	7318	5703	5442	349300	8241	N/A
48	10/21/2016	74.8	7266	5822	4952	349720	7825	N/A
49	10/21/2016	77.2	7232	6722	4478	348200	7831	N/A
AVG=		**76.7**	**7693**	**5,913**	**5,038**	**16,964,025**	**8,348**	TOTAL

API 47-017-06425 Farm Name Denzil C. Spencer et al Well Number Arthur Unit 1H				
EXHIBIT 3				
LITHOLOGY/ FORMATION	**TOP DEPTH (TVD) From Surface**	**BOTTOM DEPTH (TVD) From Surface**	**TOP DEPTH (MD) From Surface**	**BOTTOM DEPTH (MD) From Surface**
Fresh Water	475'	N/A	475'	N/A
Shale/ Siltstone	0	177	0	177
Shale/ Trace Coal	est. 177	207	est. 177	207
Shale/ Siltstone	est. 207	257	est. 207	257
Shale/ Trace Coal	est. 257	277	est. 257	277
Shale/ Sandstone	est. 277	657	est. 277	657
Limestone/ Siltstone	est. 657	967	est. 657	967
Sandstone	est. 967	987	est. 967	987
Shale/ Limestone/ Siltstone	est. 987	1117	est. 987	1117
Siltstone/ Sandstone	est. 1117	1177	est. 1117	1177
Shale/ Siltstone	est. 1177	1237	est. 1177	1237
Sandstone	est. 1237	1257	est. 1237	1257
Shale/ Siltstone	est. 1257	1397	est. 1257	1397
Sandstone/ Siltstone	est. 1397	1542	est. 1397	1542
Sandstone/ Coal	est. 1542	1602	est. 1542	1602
Siltstone/ Shale	est. 1602	1933	est. 1602	1936
Big Lime	1933	2047	1936	2050
Big Injun	2047	2483	2050	2486
Gantz Sand	2483	2611	2486	2614
Fifty Foot Sandstone	2611	2675	2614	2678
Gordon	2675	3021	2678	3024
Fifth Sandstone	3021	3059	3024	3062
Bayard	3059	3406	3062	3409
Warren	3406	3795	3409	3798
Speechley	3795	4519	3798	4522
Bradford	4519	4990	4522	4993
Benson	4990	5237	4993	5240
Alexander	5237	5428	5240	5431
Elk	5428	6008	5431	6024
Rhinestreet	6008	6344	6024	6512
Sycamore	6344	6516	6512	6753
Middlesex	6516	6649	6753	6996
Burkett	6649	6677	6996	7058
Tully	6677	6729	7058	7192
Marcellus	6729	N/A	7192	N/A

*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:	10/7/2016
Job End Date:	10/21/2016
State:	West Virginia
County:	Doddridge
API Number:	47-017-06425-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Arthur 1H
Latitude:	39.36072222
Longitude:	-80.74905833
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,795
Total Base Water Volume (gal):	17,754,468
Total Base Non Water Volume:	0

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Oil & Gas

Hydraulic Fracturing Fluid Composition:

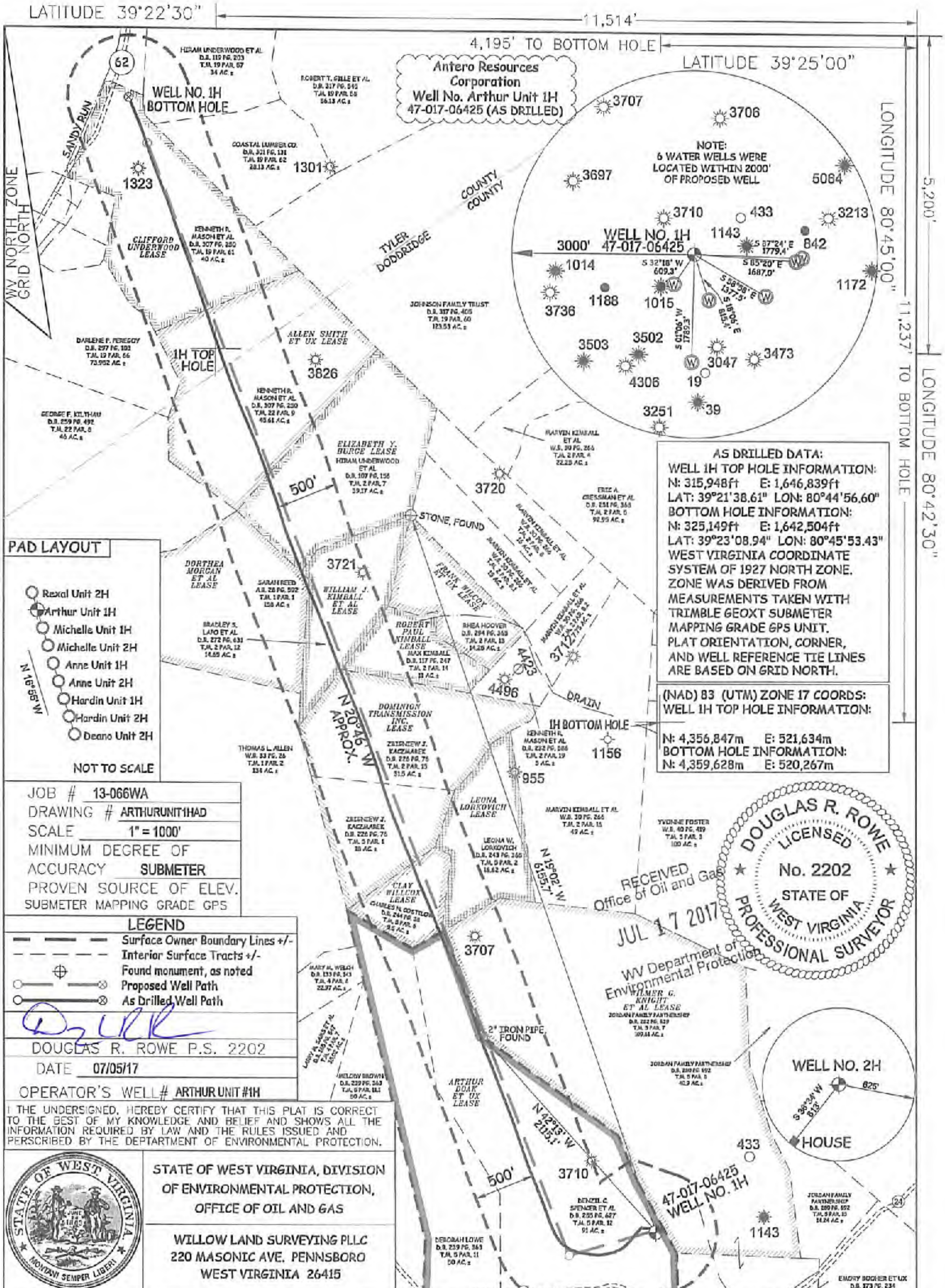
Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Antero Resources	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	89.49094	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	10.25261	
HCL Acid (12.6%-17.5%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.40000	0.12543	
			Hydrogen Chloride	7647-01-0	17.50000	0.02916	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.02608	
			Petroleum Distillates	64742-47-8	60.00000	0.02470	
			Suspending agent (solid)	14808-60-7	3.00000	0.00399	
			Surfactant	68439-51-0	3.00000	0.00157	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			2-Propenoic acid, polymer with 2-propenamide	9003-06-9	30.00000	0.01952	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01571	

Bioclear 2000	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00411	
			Deionized Water	7732-18-5	28.00000	0.00235	
SI-1100s	U.S. Well Services, LLC	Scale Inhibitor					
			Copolymer of Maleic and Acrylic acid	52255-49-9	10.00000	0.00144	
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	3.00000	0.00049	
			Phosphino carboxylic acid polymer	71050-62-9	3.00000	0.00048	
			Hexamethylene tramine penta (methylene phosphonic acid)	34690-00-1	3.00000	0.00048	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00063	
AI-302	U.S. Well Services, LLC	Acid Corrosion Inhibitors					
			Water	7732-18-5	95.00000	0.00027	
			2-Propyn-1-olcompound with methyloxirane	38172-91-7	15.00000	0.00004	

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)



LATITUDE 39°22'30"
11,514'
4,195' TO BOTTOM HOLE
LATITUDE 39°25'00"
Antero Resources Corporation
Well No. Arthur Unit 1H
47-017-06425 (AS DRILLED)
WELL NO. 1H BOTTOM HOLE
LONGITUDE 80°45'00"
5,200'
11,237' TO BOTTOM HOLE
LONGITUDE 80°42'30"
WV NORTH ZONE GRID NORTH
NOTE: 6 WATER WELLS WERE LOCATED WITHIN 2000' OF PROPOSED WELL
WELL NO. 1H 47-017-06425
TYLER COUNTY
DODDRIDGE COUNTY
1H TOP HOLE
1H BOTTOM HOLE
STONE, FOUND
DRAIN
2" IRON PIPE, FOUND
500'
N 20°46' W APPROX.
N 15°02' W 6155.7'
N 42°13' W 2051.1'
AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 315,948ft E: 1,646,839ft
LAT: 39°21'38.61" LON: 80°44'56.60"
BOTTOM HOLE INFORMATION:
N: 325,149ft E: 1,642,504ft
LAT: 39°23'08.94" LON: 80°45'53.43"
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: 4,356,847m E: 521,634m
BOTTOM HOLE INFORMATION:
N: 4,359,628m E: 520,267m
PAD LAYOUT
Rexal Unit 2H
Arthur Unit 1H
Michelle Unit 1H
Michelle Unit 2H
Anne Unit 1H
Anne Unit 2H
Hardin Unit 1H
Hardin Unit 2H
Deano Unit 2H
NOT TO SCALE
JOB # 13-066WA
DRAWING # ARTHURUNIT1HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS
LEGEND
Surface Owner Boundary Lines +/-
Interior Surface Tracts +/-
Found monument, as noted
Proposed Well Path
As Drilled Well Path
DOUGLAS R. ROWE P.S. 2202
DATE 07/05/17
OPERATOR'S WELL # ARTHUR UNIT #1H
DOUGLAS R. ROWE LICENSED No. 2202 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR
RECEIVED Office of Oil and Gas
JUL 17 2017
WV Department of Environmental Protection
WELL NO. 2H
HOUSE
47-017-06425 WELL NO. 1H

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

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

API WELL # 47 – 017 – 06425
STATE COUNTY PERMIT

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

LOCATION: ELEVATION 1,020' - ORIG. 1,001' - PROP. WATERSHED MCELROY CREEK
QUADRANGLE SMITHBURG 7.5 (TH) SHIRLEY 7.5 (BH) DISTRICT GRANT COUNTY DODDRIDGE
SURFACE OWNER DENZIL C. SPENCER ET AL ACREAGE 91 ACRES +/-
OIL & GAS ROYALTY OWNER ARTHUR DOAK ET UX; WILMER G. KNIGHT ET AL; LEONA LORKOVICH; CLAY WILLCOX; DOMINION TRANSMISSION INC.; ROBERT PAUL KIMBALL; WILLIAM J. KIMBALL ET AL; DORTHEA MORGAN ET AL; ELIZABETH Y. BURGE; ALLEN SMITH ET UX; CLIFFORD UNDERWOOD
LEASE ACREAGE 191 AC±; 110 AC±; 16.63 AC±; 18 AC±; 49.5 AC±; 11 AC±; 15 AC±; 159 AC±; 39.17 AC±; 45.6 AC±; 40 AC±

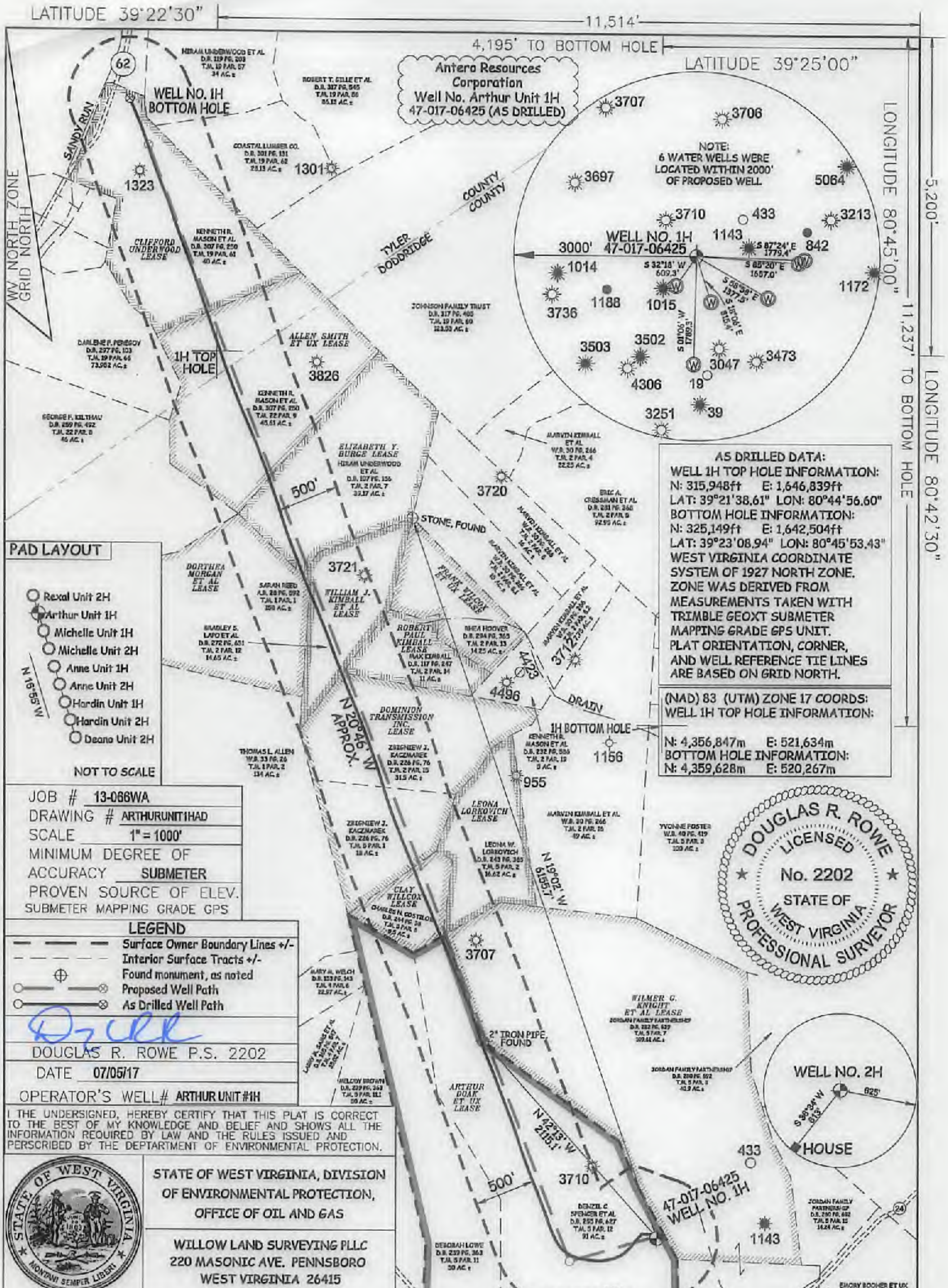
NOTE
1. ONE OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
4. WLS IS NOT CERTIFYING THE [illegible] INFORMATION PROVIDED LISTED IN [illegible] 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.

09/15/2017

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 6,746' TVD 16,985' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

FORM WW-6

COUNTY NAME PERMIT


LATITUDE 39°22'30"
11,514'
4,195' TO BOTTOM HOLE
LATITUDE 39°25'00"
Antero Resources Corporation
Well No. Arthur Unit 1H
47-017-06425 (AS DRILLED)
LONGITUDE 80°45'00"
5,200'
11,237' TO BOTTOM HOLE
LONGITUDE 80°42'30"
WV NORTH ZONE GRID NORTH
WELL NO. 1H BOTTOM HOLE
1H TOP HOLE
NOTE: 6 WATER WELLS WERE LOCATED WITHIN 2000' OF PROPOSED WELL
WELL NO. 1H 47-017-06425
TYLER COUNTY
DODDRIDGE COUNTY
AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 315,948ft E: 1,646,839ft
LAT: 39°21'38.61" LON: 80°44'56.60"
BOTTOM HOLE INFORMATION:
N: 325,149ft E: 1,642,504ft
LAT: 39°23'08.94" LON: 80°45'53.43"
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: 4,356,847m E: 521,634m
BOTTOM HOLE INFORMATION:
N: 4,359,628m E: 520,267m
PAD LAYOUT
Rexal Unit 2H
Arthur Unit 1H
Michelle Unit 1H
Michelle Unit 2H
Anne Unit 1H
Anne Unit 2H
Hardin Unit 1H
Hardin Unit 2H
Deana Unit 2H
N 16°55' W
NOT TO SCALE
N 20°46' W APPROX.
N 19°02' W 6155.7'
N 42°13' W 2115.1'
1H BOTTOM HOLE
STONE, FOUND
2" IRON PIPE, FOUND
DOUGLAS R. ROWE LICENSED No. 2202 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR
WELL NO. 2H
HOUSE
47-017-06425 WELL NO. 1H
JOB # 13-066WA
DRAWING # ARTHURUNIT1HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS
LEGEND
Surface Owner Boundary Lines +/-
Interior Surface Tracts +/-
Found monument, as noted
Proposed Well Path
As Drilled Well Path
DOUGLAS R. ROWE P.S. 2202
DATE 07/05/17
OPERATOR'S WELL# ARTHUR UNIT #1H
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 DEPTARTMENT 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
NOTE
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09/15/2017

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

API WELL # 47 - 017 - 06425
STATE COUNTY PERMIT

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

LOCATION: ELEVATION 1,020' - ORIG. 1,001' - PROP. WATERSHED MCELROY CREEK

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SURFACE OWNER DENZIL C. SPENCER ET AL ACREAGE 91 ACRES +/-

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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 ___

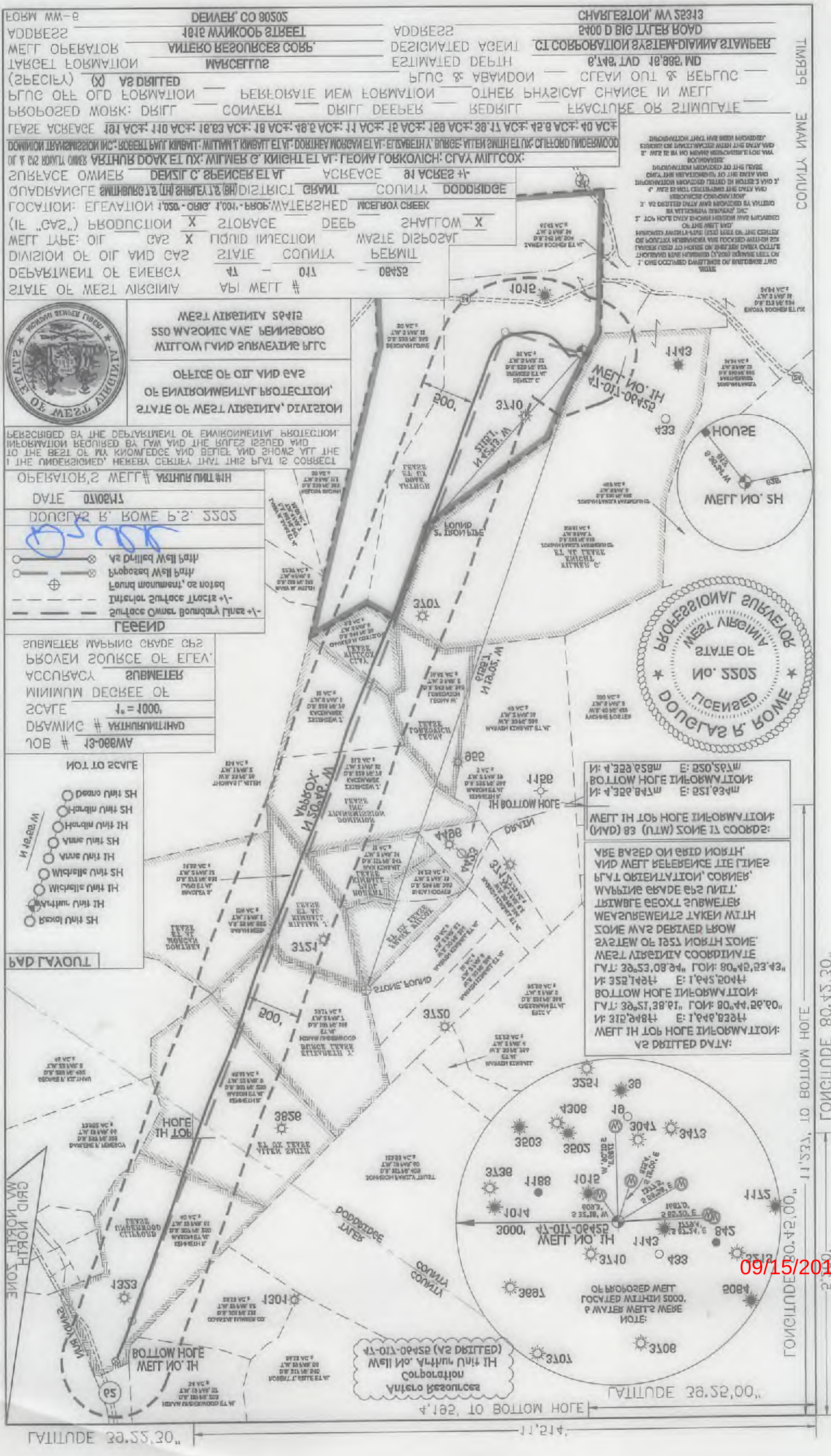
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,746' TVD 16,985' MD

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

ADDRESS 1615 WYNKOOP STREET DENVER, CO 80202 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

FORM WW-6

COUNTY NAME PERMIT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DATE 07/06/17
DOUGLAS R. ROWE P.S. 2202
LEGEND
Surface Owner Boundary Lines +/-
Interior Surface Tracts +/-
Found monument, as noted
Proposed Well Path
As Drilled Well Path
SUBMETER MAPPING GRADE GPS
PROVEN SOURCE OF ELEV.
ACCURACY SUBMETER
MINIMUM DEGREE OF
SCALE 1" = 1000'
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JOB # 13-099WA
NOT TO SCALE
PAD LAYOUT
Rexol Unit 2H
Arthur Unit 1H
Michelle Unit 1H
Michelle Unit 2H
Arne Unit 1H
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Hardin Unit 1H
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Dennis Unit 2H
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09/15/2017