

WR-35
Rev. 8/23/13

Reviewed 12/21/2018
Page 1 of 4
Jul C. Jones
12/19/18

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

API 47 - 017 - 06637 County Doddridge District Central
Quad West Union 7.5' Pad Name Balli Pad Field/Pool Name ----
Farm name Jeffrey K. Jones Sr. et al Well Number Rock 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 4350342m Easting 513454m
Landing Point of Curve Northing 4350282.81m Easting 513892.24m
Bottom Hole Northing 4348102m Easting 514623m

Elevation (ft) 1135.5' 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 1/7/2015 Date drilling commenced 12/27/2015 Date drilling ceased 5/21/2016
Date completion activities began 9/23/2018 Date completion activities ceased 4/14/2018
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 107', 192' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 737' 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

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API 47-017 - 06637 Farm name Jeffrey K. Jones Sr. et al Well number Rock 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"	72'	New	94#, K-55	N/A	Y
Surface	17-1/2"	13-3/8"	334'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2527'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	14995'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7092'		4.7#, N-80		
Packer type and depth set		N/A					

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	100 sx	15.6	1.18	118	0'	8 Hrs.
Surface	Class A	393 sx	15.6	1.18	464	0'	8 Hrs.
Coal							
Intermediate 1	Class A	935sx	15.6	1.18	1103	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	982sx (Lead) 1944sx (Tail)	14.5(Load), 15.2 (Tail)	1.31 (Load), 1.83 (Tail)	4844	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 14995' MD, 6747' TVD (BHL), 6747' (Deepest Point Drilled) Loggers TD (ft) 14995' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 6466'

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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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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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
Marcellus	6579' (TOP)	TVD	7110' (TOP) MD
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3600 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 9052.46 mcfpd Oil 112.87 bpd NGL --- bpd Water 37.19 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 ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling LLC
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

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

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

Stimulating Company CalFrac Well Services
Address 717 17th Street, Suite 1445 City Denver State CO Zip 80202

Please insert additional pages as applicable.

Completed by Karin Cox Telephone 303-357-6820
Signature  Title Permitting Agent Date 9/7/2018

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

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EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/23/2017	14736	14904	48	Marcellus
2	11/24/2017	14536	14705	48	Marcellus
3	11/24/2017	14337	14505	48	Marcellus
4	11/25/2017	14138	14306	48	Marcellus
5	11/25/2017	13939	14107	48	Marcellus
6	11/26/2017	13739	13907	48	Marcellus
7	11/27/2017	13540	13708	48	Marcellus
8	11/27/2017	13341	13509	48	Marcellus
9	11/28/2017	13141	13309	48	Marcellus
10	11/28/2017	12942	13110	48	Marcellus
11	11/29/2017	12743	12911	48	Marcellus
12	11/29/2017	12544	12712	48	Marcellus
13	11/30/2017	12344	12512	48	Marcellus
14	12/1/2017	12145	12313	48	Marcellus
15	12/1/2017	11946	12114	48	Marcellus
16	12/2/2017	11746	11914	48	Marcellus
17	12/2/2017	11547	11715	48	Marcellus
18	12/3/2017	11348	11516	48	Marcellus
19	12/3/2017	11149	11317	48	Marcellus
20	12/4/2017	10949	11117	48	Marcellus
21	12/5/2017	10750	10918	48	Marcellus
22	12/5/2017	10551	10719	48	Marcellus
23	12/5/2017	10351	10519	48	Marcellus
24	12/6/2017	10152	10320	48	Marcellus
25	12/7/2017	9953	10121	48	Marcellus
26	12/7/2017	9753	9922	48	Marcellus
27	12/8/2017	9554	9722	48	Marcellus
28	12/8/2017	9355	9523	48	Marcellus
29	12/9/2017	9156	9324	48	Marcellus
30	12/9/2017	8956	9124	48	Marcellus
31	12/10/2017	8757	8925	48	Marcellus
32	12/10/2017	8558	8726	48	Marcellus
33	12/11/2017	8358	8527	48	Marcellus
34	12/11/2017	8159	8327	48	Marcellus
35	12/12/2017	7960	8128	48	Marcellus
36	12/13/2017	7761	7929	48	Marcellus
37	12/13/2017	7561	7729	48	Marcellus
38	12/14/2017	7362	7530	48	Marcellus
39	12/14/2017	7163	7331	48	Marcellus

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API 47-017-06637 Farm Name Jeffrey K. Jones Sr. et al Well Number Rock Unit 2H								
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	9/23/2017	68.6	7683	7660	3434	506550	9964	N/A
2	11/24/2017	67.1	7714	6470	4550	506900	10129	N/A
3	11/24/2017	70.3	7093	5848	5246	505150	10174	N/A
4	11/25/2017	75	7355	5887	4503	505400	9790	N/A
5	11/25/2017	72.8	7334	5729	4679	506500	9776	N/A
6	11/26/2017	72.6	7271	5409	4993	505150	9665	N/A
7	11/27/2017	74.8	7464	6018	4768	506850	9943	N/A
8	11/27/2017	75.4	7397	6419	4478	505850	9831	N/A
9	11/28/2017	73.7	7343	5828	4370	505100	9914	N/A
10	11/28/2017	78.1	7511	5855	5635	504850	9989	N/A
11	11/29/2017	77.3	7456	6071	3704	505150	9902	N/A
12	11/29/2017	73.5	7498	5852	5353	506150	12923	N/A
13	11/30/2017	71.8	7376	5833	5099	505700	12519	N/A
14	12/1/2017	76.3	7281	5529	5188	490900	9478	N/A
15	12/1/2017	73.7	7317	5553	5094	506550	10184	N/A
16	12/2/2017	74.9	7165	5621	4723	504950	9681	N/A
17	12/2/2017	78.2	7253	5599	5035	490650	9526	N/A
18	12/3/2017	76.7	7098	5470	5628	504900	9684	N/A
19	12/3/2017	76.2	7142	5821	4913	505900	9727	N/A
20	12/4/2017	73.1	7275	7205	3759	504900	9702	N/A
21	12/5/2017	77.7	7252	7964	3920	505550	9582	N/A
22	12/5/2017	77.4	6979	5829	3770	504850	9747	N/A
23	12/5/2017	74.4	7119	6274	4949	505600	10745	N/A
24	12/6/2017	76.4	7233	6225	5525	504600	11018	N/A
25	12/7/2017	73.5	7350	6282	4519	504700	10023	N/A
26	12/7/2017	73.8	7535	6279	4751	505950	11422	N/A
27	12/8/2017	80.2	7663	6322	4850	505100	10125	N/A
28	12/8/2017	80.2	7413	6368	4227	505150	9891	N/A
29	12/9/2017	77.8	7657	6266	5180	505200	11282	N/A
30	12/9/2017	71.5	7699	6359	3884	505450	11413	N/A
31	12/10/2017	75.8	7114	6385	4778	505100	9637	N/A
32	12/10/2017	71.7	7335	6328	4359	505250	10847	N/A
33	12/11/2017	72.5	7758	6351	3849	504800	11747	N/A
34	12/11/2017	77	7109	6253	4411	504950	9626	N/A
35	12/12/2017	74.2	7173	6092	5637	505150	9712	N/A
36	12/13/2017	70.8	7736	6765	5076	504850	11081	N/A
37	12/13/2017	75.3	7365	5872	4323	505400	9776	N/A
38	12/14/2017	72.3	7055	6008	4788	505350	9877	N/A
39	12/14/2017	69.8	7372	6021	4259	505550	12401	N/A
	AVG=	74	7,358	6,152	4,672	19,682,600	402,453	TOTAL

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API 47-017-06637 Farm Name Jeffrey K. Jones Sr. et al Well Number Rock Unit 2H

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Freshwater	107'	N/A	107'	N/A
Freshwater	192'	N/A	192'	N/A
Siltstone/Sandstone	0	147	0	147
Sandstone	est. 147	205	est. 147	205
Sandstone/Siltstone/Shale	est. 205	327	est. 205	327
Sandstone/Shale/Trace Coal	est. 327	447	est. 327	447
Sandstone	est. 447	547	est. 447	547
Sandstone/Shale	est. 547	607	est. 547	607
Sandstone	est. 607	687	est. 607	687
Siltstone	est. 687	727	est. 687	727
Shale	est. 727	767	est. 727	767
Limestone	est. 767	787	est. 767	787
Siltstone	est. 787	907	est. 787	907
Shale	est. 907	1,147	est. 907	1,147
Shale/Tr Coal	est. 1147	1,167	est. 1147	1,167
Shale	est. 1167	1,207	est. 1167	1,207
Sandstone	est. 1207	1,227	est. 1207	1,227
Shale	est. 1227	1,245	est. 1227	1,245
Sandstone	est. 1245	1,307	est. 1245	1,307
Shale/Siltstone	est. 1307	1,367	est. 1307	1,367
Limestone	est. 1367	1,387	est. 1367	1,387
Sandstone	est. 1387	1,447	est. 1387	1,447
Siltstone	est. 1447	1,489	est. 1447	1,489
Sandstone/Shale/Siltstone	est. 1489	2,023	est. 1489	2,634
Big Lime	2,023	2,629	2,028	2,634
Fifty Foot Sandstone	2,629	2,692	2,634	2,697
Gordon	2,692	3,095	2,697	3,100
Fifth Sandstone	3,095	3,117	3,100	3,122
Bayard	3,117	3,736	3,122	3,745
Speechley	3,736	4,109	3,745	4,134
Balltown	4,109	4,531	4,134	4,597
Bradford	4,531	5,020	4,597	5,144
Benson	5,020	5,278	5,144	5,434
Alexander	5,278	6,229	5,434	6,482
Sycamore	6,229	6,390	6,482	6,682
Middlesex	6,390	6,515	6,682	6,909
Burkett	6,515	6,543	6,909	6,992
Tully	6,543	6,579	6,992	7,110
Marcellus	6,579	NA	7,110	NA

*Please note Antero determines formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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Hydraulic Fracturing Fluid Product Component Information Disclosure

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Job Start Date:	11/23/2017
Job End Date:	12/14/2017
State:	West Virginia
County:	Doddridge
API Number:	47-017-06637-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Rock 2H
Latitude:	39.30235800
Longitude:	-80.84396100
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,743
Total Base Water Volume (gal):	17,318,495
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Supplied by Operator	Base Fluid					
			Water	7732-18-5	70.00000	87.67944	
DAP-902	CWS	Scale Inhibitor					
				Listed Below			

DWP-111	CWS	Gel Slurry					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
SANIFRAC 8844	CWS	Biocide					
				Listed Below			
Hydrochloric Acid	CWS	Clean Perforations					
				Listed Below			
Calbreak 5501	CWS	Breaker					
				Listed Below			
DAP-103	CWS	Iron Control					
				Listed Below			
CI-9100G	CWS	Corrosion Inhibitor					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					

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				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	11.95094	
			Calcite	471-34-1	1.00000	0.08666	
			Hydrochloric acid	7647-01-0	37.00000	0.04630	
			Illite	12173-60-3	1.00000	0.03283	
			Polymer	26100-47-0	45.00000	0.03268	
			Guar gum	9000-30-0	60.00000	0.03242	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.03242	
			Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.02179	
			Goethite	1310-14-1	0.10000	0.01195	
			Biotite	1302-27-8	0.10000	0.01195	
			Apatite	64476-38-6	0.10000	0.01195	
			Ammonium chloride	12125-02-9	11.00000	0.00799	
			Ammonium Persulfate	64742-47-8	100.00000	0.00727	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00624	
			2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00612	
			Ilmenite	98072-94-7	0.10000	0.00328	
			Sorbitan monooleate	1338-43-8	4.00000	0.00291	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00270	
			2,2-Dibromo-3- Nitrilopropionamide	10222-01-2	20.00000	0.00229	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00218	
			1,2-Propanediol	57-55-6	10.00000	0.00153	

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			Vinylidene chloride-methyl acrylate copolymer	69418-26-4	20.00000	0.00145	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00145	
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00081	
			Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00073	
			Sodium bromide	7647-15-6	4.00000	0.00046	
			Citric acid	77-92-9	60.00000	0.00042	
			Alkylloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00036	
			Dibromoacetonitrile	3252-43-5	3.00000	0.00034	
			Acrylamide	79-06-1	0.10000	0.00007	
			Ethylene glycol	107-21-1	40.00000	0.00003	
			Ethoxylated alcohols	Proprietary	10.00000	0.00001	Proprietary CAS
			Diethylene glycol	111-46-6	1.00000	0.00001	
			Diethylene glycol (mono) methyl ether	34590-94-8	20.00000	0.00001	
			Formic Acid	64-18-6	10.00000	0.00001	
			Cinnamaldehyde	104-55-2	10.00000	0.00001	
			Tar bases, quinolone derivs	68513-87-1	1.00000	0.00001	
			Isopropanol	67-63-0	5.00000	0.00001	
			Tar bases, quinolone derivs, benzyl chloride-quaternized	72480-70-7	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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LATITUDE 39°20'00"

3,056'

LATITUDE 39°17'30"

LONGITUDE 80°47'11"

3,496' TO BOTTOM HOLE

11,311'

LONGITUDE 80°50'00"

Antero Resources Corporation
Well No. Rock Unit 2H
47-017-06637

THELMA S. JAMES ET AL
D.S. 241 PG. 659
T.M. 03 PAR. 03
54 AC ±

DONNA E. S'PELLANAH
D.S. 244 PG. 428
T.M. 03 PAR. 04
32.23 AC ±

DONNA E. S'PELLANAH
D.S. 244 PG. 428
T.M. 03 PAR. 19
42.5 AC ±

DONNA E. S'PELLANAH
D.S. 244 PG. 428
T.M. 03 PAR. 20
13.5 AC ±

STEPHEN BUSH ET UX
D.S. 274 PG. 571
T.M. 3 PAR. 15.2
50 AC ±

SAMUEL C. HAMMETT ET AL
D.S. 233 PG. 241
T.M. 07 PAR. 03
18.1 AC ±

BRENDA D. JOBES
LEASE

1068

1301

JEFFREY E. JONES SR. ET AL
D.S. 277 PG. 100
T.M. 07 PAR. 07.1
77.32 AC ±

MONDALL L. PIGGOTT
LEASE

SUSAN C. PARSONS
D.S. 121 PG. 455
T.M. 03 PAR. 03
11 AC ±

JAMES D. FAUND ET AL
D.S. 244 PG. 540
T.M. 07 PAR. 07
3.42 AC ±

STONE, FOUND

CHARLEY SMITH
ET AL LEASE

JOHNATHAN L. GAYES
D.S. 202 PG. 005
T.M. 07 PAR. 01
24.77 AC ±

ALICE MIRACLE
ET AL LEASE

RUBY COTTRILL
ET AL LEASE

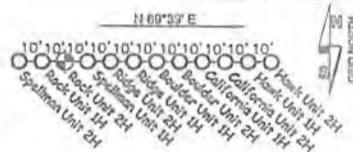
NOTES:
WELL 2H TOP HOLE INFORMATION:
N: 295,051ft E: 1,619,641ft
LAT: 39°18'08.20" LON: 80°50'38.87"
BOTTOM HOLE INFORMATION:
N: 287,635ft E: 1,623,352ft
LAT: 39°16'55.45" LON: 80°49'50.26"
WEST VIRGINIA COORDINATE
SYSTEM OF 1927 NORTH ZONE
ZONE WAS DERIVED FROM
MEASUREMENTS TAKEN WITH
TRIMBLE GEOXT 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: 4,350,342m E: 513,454m
BOTTOM HOLE INFORMATION:
N: 4,348,102m E: 514,623m

- NOTE
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
 3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
 5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR DISCREPANCIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



PAD LAYOUT



NOT TO SCALE



NOTE:
4 WATER WELLS WERE
LOCATED WITHIN 2000'
OF THE CENTER OF PAD

JOB # 14-084WA
DRAWING # ROCK2HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

LEGEND
- - - Surface Owner Boundary Lines +/-
--- Interior Surface Tracts +/-
○ Proposed Well Path
⊙ As Drilled Well Path

DOUGLAS R. ROWE P.S. 2202

DATE 07/17/18

OPERATOR'S WELL # ROCK UNIT #2H

API WELL # 47 017 06637

STATE COUNTY PERMIT

DISTRICT CENTRAL COUNTY DODDRIDGE

ACREAGE 77.32 ACRES +/-

LEASE ACREAGE 81 AC±; 176 AC±; 84 AC±; 213 AC±; 16 AC±; 15.5 AC±; 114.5 AC±; 21.13 AC±; 301.19 AC±; 87 AC±

PLUG & ABANDON CLEAN OUT & REPLUG

ESTIMATED DEPTH 6,747' TVD 14,995' MD
DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

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 1,135.5' AS BUILT WATERSHED HEADWATERS MIDDLE ISLAND CREEK
QUADRANGLE WEST UNION 7.5'
SURFACE OWNER JEFFREY K. JONES SR. ET AL
OIL & GAS ROYALTY OWNER DONDALL L. PIGGOTT; NEILL ALLEN; BRENDA B. JOBES; CHARLEY SMITH ET AL
ALICE MIRACLE ET AL; RUBY COTTRILL ET AL; JANE ANN JONES; JAMES L. BACKUS; WVSRA; ED STONE ET UX
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
(SPECIFY) AS DRILLED PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL
TARGET FORMATION MARCELLUS
WELL OPERATOR ANTERO RESOURCES CORP.
ADDRESS 1615 WYNKOOP STREET DENVER, CO 80202

12/21/2018

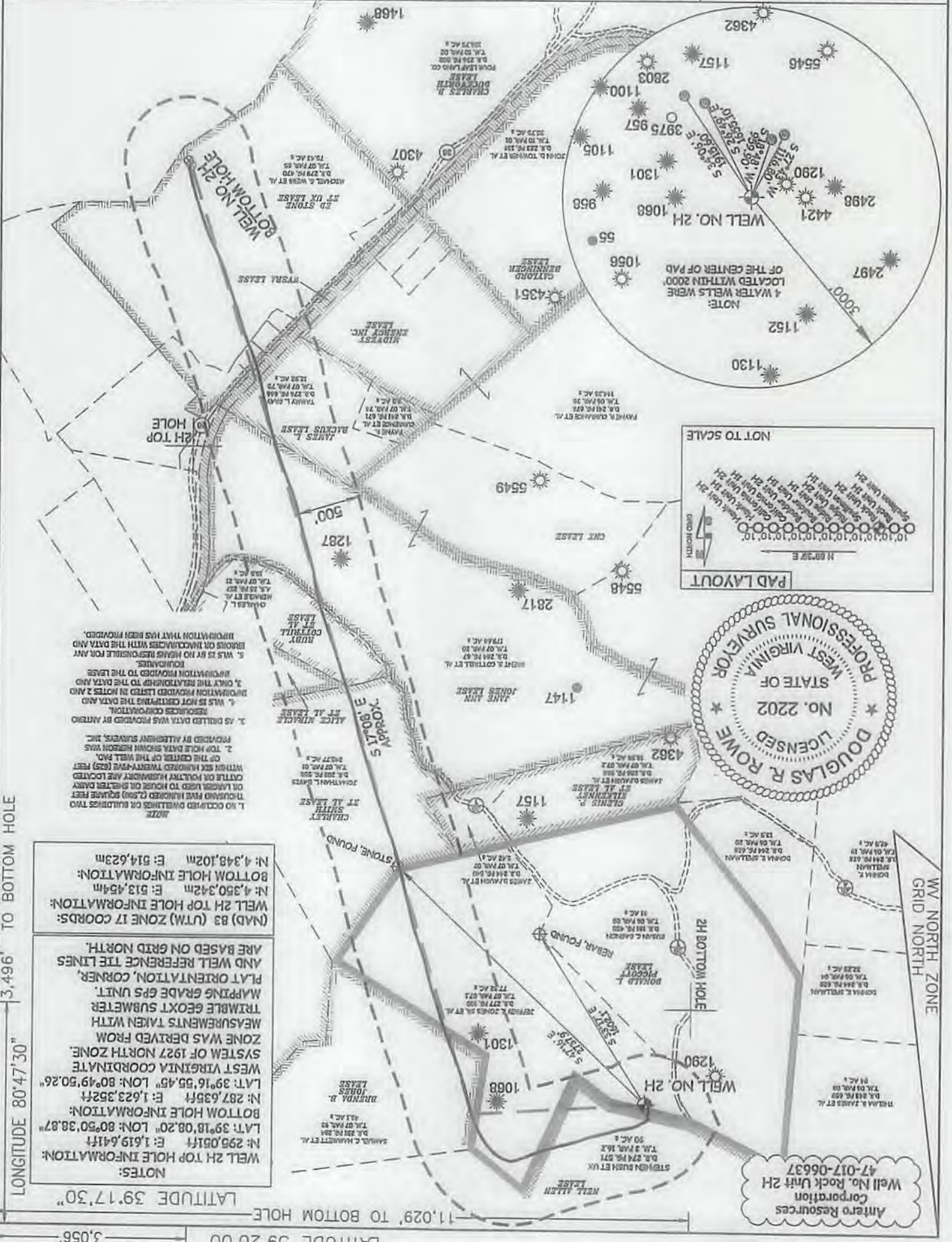
WV Department of
Environmental Protection

SEP 10 2018

RECEIVED
Office of Oil and Gas

JOB # 14-084WA DRAWING # ROCKYHMD SCALE 1" = 1000' MINIMUM DEGREE OF ACCURACY PROVEN SOURCE OF ELEV. SUBMETER DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS STATE OF WEST VIRGINIA		STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS WELL TYPE: OIL AND GAS WELL INJECTION X WASTE DISPOSAL WASTE DISPOSAL WASTE DISPOSAL
LEGEND Surface Owner Boundary Lines +/- Interior Surface Tracts +/- Proposed Well Path As Drilled Well Path	INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION. 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. I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT	OFFICE OF ENVIRONMENTAL PROTECTION, STATE OF WEST VIRGINIA, DIVISION OF OIL AND GAS
DATE 07/17/18 OPERATOR'S WELL # ROCK UNIT #2H	DATE 07/17/18 DOUGLAS R. ROWE P.S. 2202	WILLOW LAND SURVEYING PLLC 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415
PERMIT ESTIMATED DEPTH CLEAN OUT & REPLUG 6,747 TWD 14,995 MD DIAMINA STAMPER - CT CORPORATION SYSTEM 5400 D BIG TYLER ROAD CHARLESTON, WV 25313	PERMIT STATE COUNTY PERMIT 47 017 06637	WELL FORMATION TARGET FORMATION (SPECIFY) AS DRILLED CONVERT DRILL DEEPER REDRILL FRACATURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL CLEAN OUT & REPLUG 6,747 TWD 14,995 MD DIAMINA STAMPER - CT CORPORATION SYSTEM 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

LONGITUDE 80°50'00"



PROFESSIONAL SURVEYOR
STATE OF WEST VIRGINIA
NO. 2202
LICENSED
DOUGLAS R. ROWE

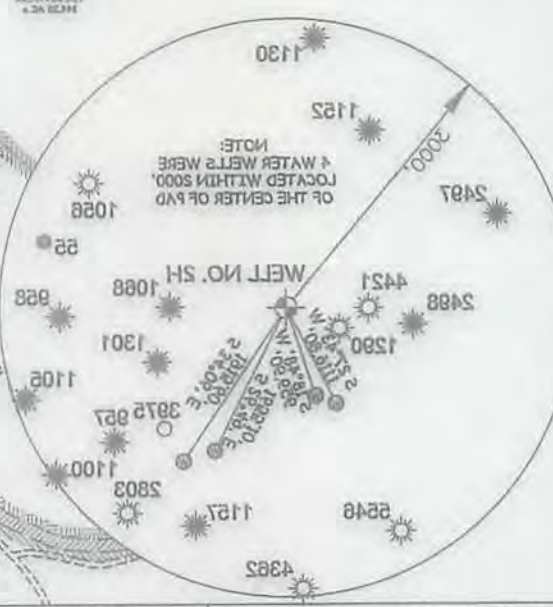
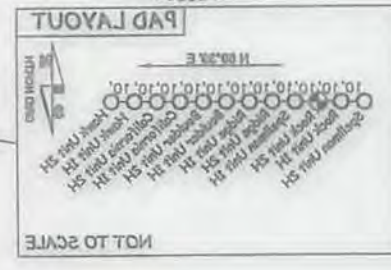
WELL 2H TOP HOLE INFORMATION:
N: 295,081ft E: 1,619,641ft
LAT. 39°18'08.20" LON. 80°50'38.87"
WELL 2H TOP HOLE INFORMATION:
N: 287,636ft E: 1,623,252ft
LAT. 39°16'55.45" LON. 80°49'50.26"
(NAD 83 UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
N: 4,350,342m E: 512,454m
WELL 2H TOP HOLE INFORMATION:
N: 4,348,102m E: 514,623m

NOTES:
 1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER WERE FOUND ON SHADER DAILY CRITTE OR POLYMER HAZARDOUS AND LOCATED WITHIN SIX HUNDRED TWENTY-TWO (622) 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. WAS NOT CERTIFIED THE DATA AND DOCUMENTS LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND BOUNDARIES.
 5. WAS NOT BEING RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION PROVIDED TO THE LEASEE.
 6. THIS SURVEY WAS CONDUCTED AND THE BOUNDARIES DETERMINED BY MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT.
 AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.
 (NAD 83 UTM) ZONE 17 COORDS:

Antero Resources
 Corporation
 Well No. Rock Unit 2H
 47-017-06637

Antero Resources Corporation
Well No. Rock Unit SH
47-07-0837

12/21/2018



NOTES:
WELL SH TOP HOLE INFORMATION:
N: 292,011 E: 1,415,411
LAT. 39°18.08'00" LONG. 80°20.38'87"
BOTTOM HOLE INFORMATION:
N: 287,635 E: 1,423,385
LAT. 39°18.25'45" LONG. 80°19.80'26"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOX SUBMETER MAPPING GRADE EPS UNIT. PLAT ORIENTATION, CORNER AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(MWD) B3 (UTM) ZONE 17 COORDS:
WELL SH TOP HOLE INFORMATION:
N: 4,350,345m E: 513,454m
BOTTOM HOLE INFORMATION:
N: 4,348,105m E: 514,633m

WELL

1. THE HOLE DATA SHOWN HEREON WAS PROVIDED BY ANTERO SURVEY, INC.
2. THE HOLE DATA SHOWN HEREON WAS PROVIDED BY ANTERO SURVEY, INC.
3. AS DRILLED DATA WAS PROVIDED BY ANTERO SURVEY, INC. THE DATA WAS PROVIDED BY ANTERO SURVEY, INC.
4. THE DATA WAS NOT OBTAINED BY ANTERO SURVEY, INC. THE DATA WAS OBTAINED BY ANOTHER PARTY AND ANTERO SURVEY, INC. HAS NOT VERIFIED THE DATA.
5. ONLY THE INFORMATION PROVIDED TO THE SURVEYOR AND INFORMATION PROVIDED TO THE STATE OF WEST VIRGINIA ARE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WITH THE DATA WHOSE INFORMATION HAS BEEN PROVIDED.
6. WELL SH BY NO MEANS RESPONSIBLE FOR ANY INFORMATION PROVIDED TO THE STATE OF WEST VIRGINIA.

LONGITUDE 80.20.00"
LONGITUDE 80.17.30"
LONGITUDE 80.14.30"
LONGITUDE 80.11.30"
LONGITUDE 80.08.30"

LEGEND
— Surface Owner Boundary Lines +
- - - Interior Surface Tracts +
○ Proposed Well Path
○ As Drilled Well Path

DATE 07/17/18
OPERATOR'S WELL # ROCK UNIT SH
API WELL # 47 - 017 - 0837

COUNTY NAME DODDRIDGE
COUNTY PERMIT

STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC
220 WASHINGTON AVE. FERRISBORO WEST VIRGINIA 26415

I THE UNDERSIGNED HEREBY CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERFORMED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

FORM WW-6
ADDRESS 1815 WYMKOP STREET DENVER, CO 80205
WELL OPERATOR ANTERO RESOURCES CORP.
TARGET FORMATION MARCELLUS
WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
DIVISION OF OIL AND GAS DEPARTMENT OF ENERGY STATE OF WEST VIRGINIA
SUBMETER MAPPING GRADE EPS
PROVEN SOURCE OF ELEV. SUBMETER
ACCURACY 1" = 100'
SCALE
DRAWING # ROCKSHAD
JOB # 14-084WA