

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

4709502421

API 47 - 085 - 02421 County Tyler District Meade
Quad Middlebourne 7.5' (TH), Pennsboro 7.5' (BH) Pad Name Mckim Pad Field/Pool Name -----
Farm name Jarret W. Shepherd et al Well Number Alli 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 4359577m Easting 504199m
Landing Point of Curve Northing 4359233m Easting 503427m
Bottom Hole Northing 4355297m Easting 504971m

Elevation (ft) 1172' 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 4/4/2017 Date drilling commenced 6/29/2017 Date drilling ceased 11/18/2017
Date completion activities began 7/16/2018 Date completion activities ceased 11/24/2018
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 None Identified Open mine(s) (Y/N) depths No
Salt water depth(s) ft None Identified 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:

WR-35
Rev. 8/23/13

API 47-085 - 02421 Farm name Jarret W. Shepherd et al Well number Alli Unit 1H

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"	533.7'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2608'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	21638'	New	23#, HCP-110	N/A	Y
Tubing		2-3/8"	7340'		4.7#, L-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	284 sx	15.6	1.21	344	0'	8 Hrs.
Surface	Class A	450 sx	15.6	1.21	545	0'	8 Hrs.
Coal							
Intermediate 1	Class A	860 sx	15.6	1.22	1049	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	810 sx (Lead) 2100 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.45 (Lead), 1.94 (Tail)	5249	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 21638' MD, 6509' TVD (BHL), 6509' (Deepest Point Drilled) Loggers TD (ft) 21638' MD

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

Plug back procedure N/A

Kick off depth (ft) 6060'

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

WR-35
Rev. 8/23/13

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PRODUCING FORMATION(S)	DEPTHS		
Marcellus	6426' (TOP)	TVD	7407' (TOP) MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

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

OPEN FLOW Gas 10088 mcfpd Oil 166 bpd NGL --- bpd Water 2 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 ₂ S, ETC)
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***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.


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

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

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

Stimulating Company Halliburton
Address 121 Champion Way Suite 200 City Canonsburg State PA Zip 15317

Please insert additional pages as applicable.

Completed by Karin Cox Telephone 303-357-7310
Signature  Title Permitting Agent Date 4/17/2019

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

API 47-095-02421 Farm Name Jarret W. Shepherd et al Well Number All Unit 1H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	7/16/2018	21242.11	21408.185	60	Marcellus
2	7/16/2018	21045.22	21211.295	60	Marcellus
3	7/16/2018	20848.33	21014.405	60	Marcellus
4	7/17/2018	20651.44	20817.515	60	Marcellus
5	7/17/2018	20454.55	20620.625	60	Marcellus
6	7/17/2018	20257.66	20423.735	60	Marcellus
7	7/18/2018	20060.77	20226.845	60	Marcellus
8	7/18/2018	19863.88	20029.955	60	Marcellus
9	7/18/2018	19666.99	19833.065	60	Marcellus
10	7/19/2018	19470.1	19636.175	60	Marcellus
11	7/20/2018	19273.21	19439.285	60	Marcellus
12	7/20/2018	19076.32	19242.395	60	Marcellus
13	7/21/2018	18879.43	19045.505	60	Marcellus
14	7/21/2018	18682.54	18848.615	60	Marcellus
15	7/22/2018	18485.65	18651.725	60	Marcellus
16	7/22/2018	18288.76	18454.835	60	Marcellus
17	7/22/2018	18091.87	18257.945	60	Marcellus
18	7/23/2018	17894.98	18061.055	60	Marcellus
19	7/23/2018	17698.09	17864.165	60	Marcellus
20	7/23/2018	17501.2	17667.275	60	Marcellus
21	7/24/2018	17304.31	17470.385	60	Marcellus
22	7/25/2018	17107.42	17273.495	60	Marcellus
23	7/25/2018	16910.53	17076.605	60	Marcellus
24	7/25/2018	16713.64	16879.715	60	Marcellus
25	7/26/2018	16516.75	16682.825	60	Marcellus
26	7/26/2018	16319.86	16485.935	60	Marcellus
27	7/26/2018	16122.97	16289.045	60	Marcellus
28	7/26/2018	15926.08	16092.155	60	Marcellus
29	7/27/2018	15729.19	15895.265	60	Marcellus
30	7/27/2018	15532.3	15698.375	60	Marcellus
31	7/27/2018	15335.41	15501.485	60	Marcellus
32	7/27/2018	15138.52	15304.595	60	Marcellus
33	7/28/2018	14941.63	15107.705	60	Marcellus
34	7/28/2018	14744.74	14910.815	60	Marcellus
35	7/28/2018	14547.85	14713.925	60	Marcellus
36	7/28/2018	14350.96	14517.035	60	Marcellus
37	7/29/2018	14154.07	14320.145	60	Marcellus
38	7/29/2018	13957.18	14123.255	60	Marcellus
39	7/29/2018	13760.29	13926.365	60	Marcellus
40	7/30/2018	13563.4	13729.475	60	Marcellus
41	7/30/2018	13366.51	13532.585	60	Marcellus
42	8/1/2018	13169.62	13335.695	60	Marcellus
43	8/2/2018	12972.73	13138.805	60	Marcellus
44	8/2/2018	12775.84	12941.915	60	Marcellus
45	8/30/2018	12578.95	12745.025	60	Marcellus
46	8/30/2018	12382.06	12548.135	60	Marcellus
47	8/30/2018	12185.17	12351.245	60	Marcellus
48	8/30/2018	11988.28	12154.355	60	Marcellus
49	8/31/2018	11791.39	11957.465	60	Marcellus
50	8/31/2018	11594.5	11760.575	60	Marcellus
51	8/31/2018	11397.61	11563.685	60	Marcellus
52	9/1/2018	11200.72	11366.795	60	Marcellus
53	9/1/2018	11003.83	11169.905	60	Marcellus
54	9/1/2018	10806.94	10973.015	60	Marcellus
55	9/1/2018	10610.05	10776.125	60	Marcellus
56	9/2/2018	10413.16	10579.235	60	Marcellus
57	9/2/2018	10216.27	10382.345	60	Marcellus
58	9/2/2018	10019.38	10185.455	60	Marcellus
59	9/2/2018	9822.49	9988.565	60	Marcellus
60	9/3/2018	9625.6	9791.675	60	Marcellus
61	9/3/2018	9428.71	9594.785	60	Marcellus
62	9/3/2018	9231.82	9397.895	60	Marcellus
63	9/4/2018	9034.93	9201.005	60	Marcellus
64	9/5/2018	8838.04	9004.115	60	Marcellus
65	9/5/2018	8641.15	8807.225	60	Marcellus
66	9/5/2018	8444.26	8610.335	60	Marcellus
67	9/6/2018	8247.37	8413.445	60	Marcellus
68	9/7/2018	8050.48	8216.555	60	Marcellus
69	9/7/2018	7853.59	8019.665	60	Marcellus
70	9/7/2018	7656.7	7822.775	60	Marcellus
71	9/7/2018	7459.81	7625.885	60	Marcellus

API 47-095-02421 Farm Name Jarret W. Shepherd et al Well Number Alli 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	7/16/2018	70.3	7936	6063	3602	334930	11661.29	N/A
2	7/16/2018	64.34	8260	5610	3104	352930	8643.214	N/A
3	7/16/2018	71.3	7882	6245	3698	359640	10691.95	N/A
4	7/17/2018	70.6	7947	6432	3268	358680	8761.833	N/A
5	7/17/2018	72.9	8100	5858	3189	364960	9561.476	N/A
6	7/17/2018	64.7	7538	5770	3563	356220	13894.93	N/A
7	7/18/2018	69.29	7368	5980	3188	356680	7892.786	N/A
8	7/18/2018	66.34	7883	6442	3375	350120	8114.5	N/A
9	7/18/2018	65.7	7673	6203	3503	357180	11459.48	N/A
10	7/19/2018	72.06	7351	6182	3464	360040	9045.429	N/A
11	7/20/2018	69.12	7582	4814	3744	360120	11021.31	N/A
12	7/20/2018	72.2	7886	5941	3725	357540	9419.69	N/A
13	7/21/2018	66.88	7341	5711	3417	358060	9342.905	N/A
14	7/21/2018	66.2	7351	5471	4093	356840	8970.548	N/A
15	7/22/2018	67.83	7707	5768	3366	357660	7646.31	N/A
16	7/22/2018	71.82	7601	6061	3520	356180	7612.476	N/A
17	7/22/2018	73.1	7706	6107	4001	349840	7908.286	N/A
18	7/23/2018	64	7411	6257	3676	359000	10172.21	N/A
19	7/23/2018	67	7259	6277	4383	358400	8602.5	N/A
20	7/23/2018	68.7	7200	5884	4620	349560	8394.286	N/A
21	7/24/2018	77.1	7532	6205	4025	352160	8081.881	N/A
22	7/25/2018	71.98	7780	5869	3881	353060	7347.643	N/A
23	7/25/2018	71.2	7697	6439	3610	351380	8616.381	N/A
24	7/25/2018	71.24	7388	6045	3650	367220	8192.19	N/A
25	7/26/2018	66.53	7382	5924	3348	363220	8099.524	N/A
26	7/26/2018	67.5	8021	6112	3639	351860	7435.19	N/A
27	7/26/2018	70.9	8088	5809	3386	357600	7426.762	N/A
28	7/26/2018	71.84	7688	6611	3516	359520	7612.19	N/A
29	7/27/2018	73.91	7660	5847	3700	359180	7463.048	N/A
30	7/27/2018	74.8	7465	6275	3687	357680	8188.19	N/A
31	7/27/2018	74.4	7655	5454	3595	356900	8700.762	N/A
32	7/27/2018	71.5	7545	6590	3424	355680	7872.476	N/A
33	7/28/2018	72.98	7747	6262	3633	363300	8097.071	N/A
34	7/28/2018	76.9	8194	6894	3802	360780	7629.119	N/A
35	7/28/2018	72.2	7843	5748	3548	354400	7412.667	N/A
36	7/28/2018	72.57	7872	5494	3884	352600	7458.667	N/A
37	7/29/2018	72.75	7699	5950	3922	352580	7867.905	N/A
38	7/29/2018	71.61	7624	6067	3676	350420	8283.405	N/A
39	7/29/2018	72.45	7551	5915	3954	356680	7460.643	N/A
40	7/30/2018	69.65	7432	5533	3513	356360	7969.69	N/A
41	7/30/2018	76.07	8038	5927	3727	356040	7385.595	N/A
42	8/1/2018	67.95	7830	5642	3895	360220	10251.36	N/A
43	8/2/2018	78	7993	5884	3612	351100	7373.333	N/A
44	8/2/2018	71.5	8084	5288	0	352440	10460	N/A
45	8/30/2018	74.4	7676	6082	4025	359660	7668.214	N/A
46	8/30/2018	73.35	7562	5545	3910	351800	7609	N/A
47	8/30/2018	67.88	7953	5419	4209	357820	10591.1	N/A
48	8/30/2018	72.4	7207	5652	3974	357520	7120.833	N/A
49	8/31/2018	73	7717	5394	4161	361380	7329.929	N/A
50	8/31/2018	76.81	7681	5685	3925	351660	7635.595	N/A
51	8/31/2018	75	7527	5609	4035	359540	7278.167	N/A
52	9/1/2018	75.8	7455	6325	3938	360500	7335.929	N/A
53	9/1/2018	74.16	7267	5239	3933	361600	7540.762	N/A
54	9/1/2018	75.5	7259	4172	3877	360980	7507.095	N/A
55	9/1/2018	76.3	7040	5270	4050	363000	7477.5	N/A
56	9/2/2018	77	7221	4749	4020	360160	7215.738	N/A
57	9/2/2018	78.47	7239	5227	3544	358180	7265.5	N/A
58	9/2/2018	78.55	7108	5191	4226	359940	7369.19	N/A
59	9/2/2018	77	7169	3931	3744	359620	7198.69	N/A
60	9/3/2018	77	6956	3572	3955	357500	7123.524	N/A
61	9/3/2018	73.62	7403	3995	4047	359220	8653.119	N/A
62	9/3/2018	75.65	7217	5516	3948	355380	7131.405	N/A
63	9/4/2018	74.76	7324	5328	3950	360300	8335.405	N/A
64	9/5/2018	72.29	7494	4945	4232	358360	8839.333	N/A
65	9/5/2018	75.21	7440	5217	5017	362220	9215.619	N/A
66	9/5/2018	78.26	6857	5315	3895	353480	7042.667	N/A
67	9/6/2018	73.39	6937	5277	4914	355760	8119.952	N/A
68	9/7/2018	78.38	6811	5032	3987	358880	7054.262	N/A
69	9/7/2018	76.13	6375	4563	3835	360720	7331.071	N/A
70	9/7/2018	75.42	6511	4750	3992	360020	7228.738	N/A
71	9/7/2018	75.47	6793	5229	4593	359000	7898.167	N/A
AVG=		72	7,521	5,649	3,761	25,351,160	589,620	TOTAL

API 47-095-02421 Farm Name Jarret W. Shepherd et al Well Number Alli Unit 1H

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Silty Sandstone	0	227	0	227
Sandy siltstone	est 227	667	est 227	667
Sandstone	est 667	887	est 667	887
Silty Sandstone	est 887	997	est 887	997
limey siltstone	est 997	1,147	est 997	1,147
silty sandstone, tr. coal	est 1147	1,287	est 1147	1,287
silty sandstone	est 1287	1,367	est 1287	1,367
silty shale	est 1367	1,587	est 1367	1,587
sandstone, tr coal	est 1587	1,647	est 1587	1,647
silty sandstone	est 1647	1,667	est 1647	1,667
sandstone	est 1667	1,807	est 1667	1,807
sandy shale	est 1807	1,887	est 1807	1,887
shaly sand	est 1887	2,057	est 1887	2,100
Big Lime	2,057	2,296	2,100	2,354
Big Injun	2,296	2,647	2,354	2,721
Gantz Sand	2,647	2,808	2,721	2,892
Fifty Foot Sandstone	2,808	2,987	2,892	3,085
Gordon	2,987	3,088	3,085	3,196
Fifth Sandstone	3,088	3,458	3,196	3,621
Bayard	3,458	3,626	3,621	3,826
Warren	3,626	3,964	3,826	4,227
Speechley	3,964	4,190	4,227	4,502
Balltown	4,190	4,755	4,502	5,201
Bradford	4,755	5,131	5,201	5,654
Benson	5,131	5,390	5,654	5,968
Alexander	5,390	5,868	5,968	6,537
Rhinestreet	5,868	6,201	6,537	6,962
Sycamore	6,201	6,298	6,962	7,109
Middlesex	6,298	6,392	7,109	7,306
Burkett	6,392	6,417	7,306	7,377
Tully	6,417	6,426	7,377	7,407
Marcellus	6,426	NA	7,407	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:	9/11/2018
Job End Date:	9/11/2018
State:	West Virginia
County:	Tyler
API Number:	47-095-02421-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Alli Unit 1H
Latitude:	39.38560200
Longitude:	-80.95145600
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,509
Total Base Water Volume (gal):	26,105,274
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
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	89.31406	Density = 8.340
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.22368	

SAND-COMMON WHITE - 100 MESH, 3307 LB BAG	Halliburton	Proppant							
			Listed Below						
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor							
			Listed Below						
SP BREAKER	Halliburton	Breaker							
			Listed Below						
SAND- PREMIUM WHITE-40/70, BULK	Halliburton	Proppant							
			Listed Below						
SCALECHEK LP-70	Halliburton	Scale Inhibitor							
			Listed Below						
WG-36 GELLING AGENT	Halliburton	Gelling Agent							
			Listed Below						
MC B-8614	Halliburton	Biocide							
			Listed Below						
HYDROCHLORI C ACID	Halliburton	Solvent							
			Listed Below						

EXCELERATE PS-2	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	10.39980			
			Guar gum		9000-30-0	100.00000	0.03032			
			Hydrochloric acid		7647-01-0	15.00000	0.02583			
			Acrylamide acrylate polymer		Proprietary	30.00000	0.01826			Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Hydrotreated light petroleum distillate		64742-47-8	30.00000	0.01826			
			Inorganic salt		Proprietary	30.00000	0.01826			
			Ethylene glycol		107-21-1	60.00000	0.00807			
			Glutaraldehyde		111-30-8	30.00000	0.00248			
			Telmer		Proprietary	10.00000	0.00135			
			Sodium persulfate		7775-27-1	100.00000	0.00088			
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides		68424-85-1	5.00000	0.00041			
			Sodium polyacrylate		9003-04-7	1.00000	0.00013			
			Methanol		67-56-1	60.00000	0.00009			
			Ethanol		64-17-5	1.00000	0.00008			
			Modified thiourea polymer		Proprietary	30.00000	0.00004			
			Fatty acids, tall oil		Proprietary	30.00000	0.00004			
			Ethoxylated alcohols		Proprietary	30.00000	0.00004			
			Olefins		Proprietary	5.00000	0.00002			
			Propargyl alcohol		107-19-7	10.00000	0.00001			
			Phosphoric acid		7664-38-2	0.10000	0.00001			
			Acrylic acid		79-10-7	0.01000	0.00000			

			Sodium sulfate	7757-82-6	0.10000	0.00000
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* 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)

LATITUDE 39°25'00"

9,820'

LATITUDE 39°22'30"

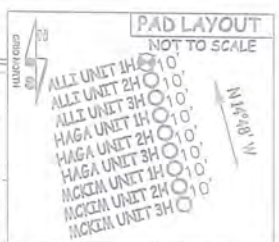
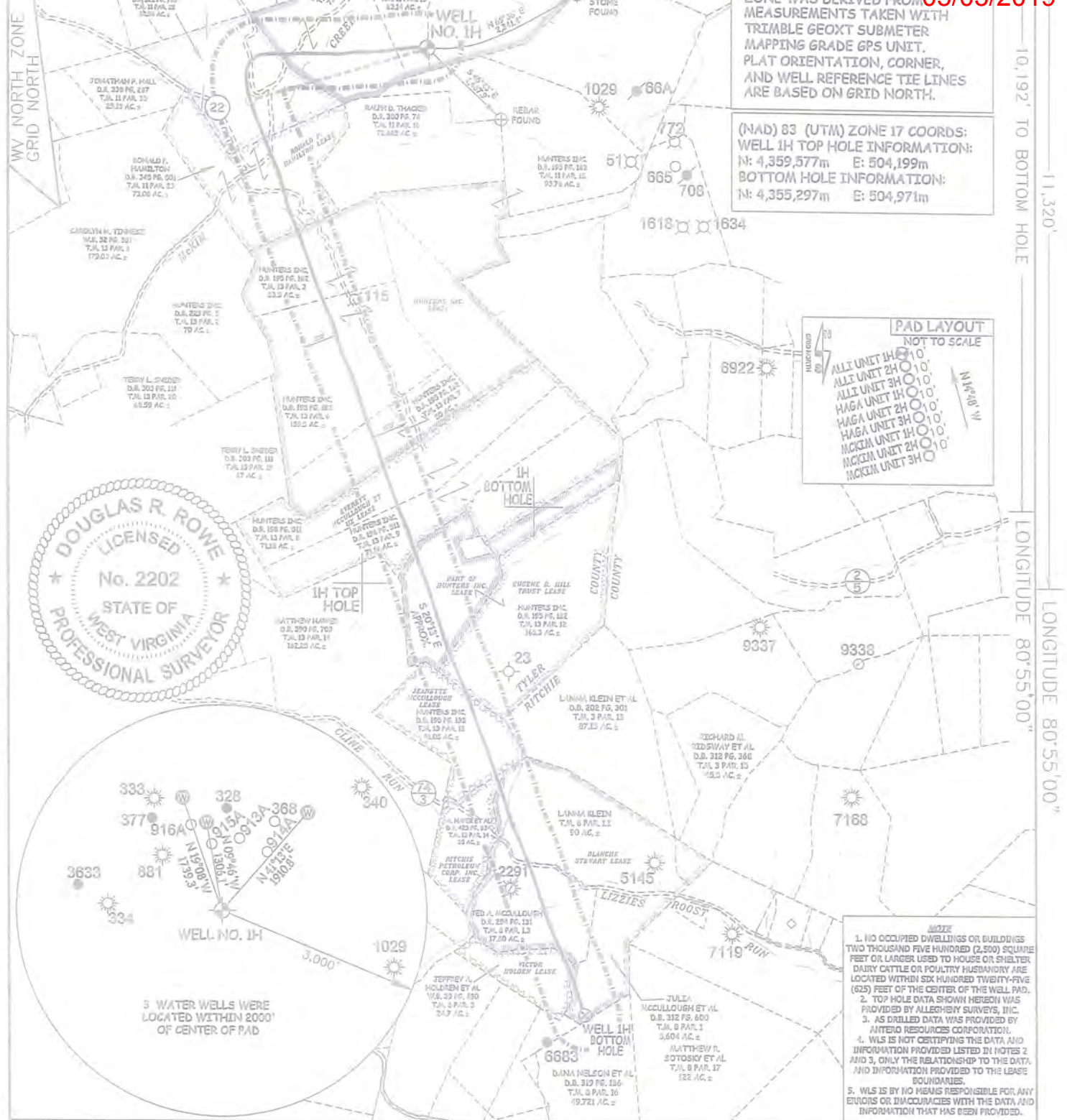
7,299' TO BOTTOM HOLE

Antero Resources Corporation Well No. Alli Unit 1H

AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
 N: 325,862ft E: 1,589,775ft
 LAT: 39°23'08.11" LON: 80°57'05.08"
BOTTOM HOLE INFORMATION:
 N: 311,776ft E: 1,592,075ft
 LAT: 39°20'49.26" LON: 80°56'32.91"
 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: 4,359,577m E: 504,199m
BOTTOM HOLE INFORMATION:
 N: 4,355,297m E: 504,971m

05/03/2019



- NOTES**
- 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.
 - TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHEMY SURVEYS, INC.
 - AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 - 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.
 - WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

JOB # 16-032WA
 DRAWING # ALLIHAD
 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

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 02/13/19
 OPERATOR'S WELL# ALLI UNIT #1H

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
 LOCATION: ELEVATION 1,172' - AS BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK
 QUADRANGLE MIDDLEBOURNE 7.5' (TH) PENNSBORO 7.5' (BH) DISTRICT MEADE COUNTY TYLER
 SURFACE OWNER JARRET W. SHEPHERD ET AL ACREAGE 83.14 ACRES +/-
 OIL & GAS ROYALTY OWNER JOE LYNN FAMILY TRUST; RONALD P. HAMILTON; RONALD P. HAMILTON; HUNTERS INC.; EVERETT LEASE ACREAGE 431.53 AC; 62.50 AC; 73.08 AC; 471.20 AC; MCCULLOUGH ET UX; EUGENE R. HILL TRUST; JEANETTE MCCULLOUGH; RITCHIE PETROLEUM CORP. INC.; BLANCHE STEWART; VICTOR HOLDEN 188.72 AC; 104.3 AC; 48.05 AC; 35 AC; 195 AC; 30 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 PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,509' TVD 21,638' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DJANNA STAMPER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313