

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

4709502424

API 47 - 085 - 02424 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 Haga 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 4359565m Easting 504202m
Landing Point of Curve Northing 4359490m Easting 504199m
Bottom Hole Northing 4355735m Easting 505666m

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 12/25/2017
Date completion activities began 9/9/2018 Date completion activities ceased 11/16/2018
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 - 02424 Farm name Jarret W. Shepherd et al Well number Haga 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"	112'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	550'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2581'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	20213'	New	23#, HCP-110	N/A	Y
Tubing		2-3/8"	6626'		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	620 sx	15.6	1.21	750	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	690 sx (Lead) 2000 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.45 (Lead), 1.94 (Tail)	4881	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 20213' MD, 6523' TVD (BHL), 6526' (Deepest Point Drilled) Loggers TD (ft) 20213' MD

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

Plug back procedure N/A

Kick off depth (ft) 6150'

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

API 47- 085 - 02424 Farm name Jarret W. Shepherd et al Well number Haga Unit 2H

PRODUCING FORMATION(S)	DEPTHS		
Marcellus	6426' (TOP)	TVD	6686' (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 11038 mcfpd Oil 233 bpd NGL --- bpd Water 1 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)
-------------------------	--------------------------------	------------------------------	--------------------------	-----------------------------	--

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

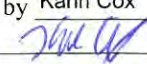
Drilling Contractor Frontier Drilling LLC
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

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 47-095-02424 Farm Name Jarret W. Shepherd et al Well Number Haga Unit 2H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/9/2018	20013	20111	60	Marcellus
2	9/9/2018	19811.916	19981.486	60	Marcellus
3	9/10/2018	19610.832	19780.402	60	Marcellus
4	9/10/2018	19409.748	19579.318	60	Marcellus
5	9/10/2018	19208.664	19378.234	60	Marcellus
6	9/10/2018	19007.58	19177.15	60	Marcellus
7	9/11/2018	18806.496	18976.066	60	Marcellus
8	9/11/2018	18605.412	18774.982	60	Marcellus
9	9/11/2018	18404.328	18573.898	60	Marcellus
10	9/12/2018	18203.244	18372.814	60	Marcellus
11	9/12/2018	18002.16	18171.73	60	Marcellus
12	9/12/2018	17801.076	17970.646	60	Marcellus
13	9/12/2018	17599.992	17769.562	60	Marcellus
14	9/13/2018	17398.908	17568.478	60	Marcellus
15	9/13/2018	17197.824	17367.394	60	Marcellus
16	9/13/2018	16996.74	17166.31	60	Marcellus
17	9/13/2018	16795.656	16965.226	60	Marcellus
18	9/14/2018	16594.572	16764.142	60	Marcellus
19	9/16/2018	16393.488	16563.058	60	Marcellus
20	9/16/2018	16192.404	16361.974	60	Marcellus
21	9/17/2018	15991.32	16160.89	60	Marcellus
22	9/17/2018	15790.236	15959.806	60	Marcellus
23	9/17/2018	15589.152	15758.722	60	Marcellus
24	9/17/2018	15388.068	15557.638	60	Marcellus
25	9/18/2018	15186.984	15356.554	60	Marcellus
26	9/18/2018	14985.9	15155.47	60	Marcellus
27	9/19/2018	14784.816	14954.386	60	Marcellus
28	9/19/2018	14583.732	14753.302	60	Marcellus
29	9/20/2018	14382.648	14552.218	60	Marcellus
30	9/20/2018	14181.564	14351.134	60	Marcellus
31	9/20/2018	13980.48	14150.05	60	Marcellus
32	9/20/2018	13779.396	13948.966	60	Marcellus
33	9/21/2018	13578.312	13747.882	60	Marcellus
34	9/21/2018	13377.228	13546.798	60	Marcellus
35	9/21/2018	13176.144	13345.714	60	Marcellus
36	9/21/2018	12975.06	13144.63	60	Marcellus
37	9/22/2018	12773.976	12943.546	60	Marcellus
38	9/22/2018	12572.892	12742.462	60	Marcellus
39	9/22/2018	12371.808	12541.378	60	Marcellus
40	9/23/2018	12170.724	12340.294	60	Marcellus
41	9/23/2018	11969.64	12139.21	60	Marcellus
42	9/23/2018	11768.556	11938.126	60	Marcellus
43	9/24/2018	11567.472	11737.042	60	Marcellus
44	9/24/2018	11366.388	11535.958	60	Marcellus
45	9/24/2018	11165.304	11334.874	60	Marcellus
46	9/25/2018	10964.22	11133.79	60	Marcellus
47	9/25/2018	10763.136	10932.706	60	Marcellus
48	9/25/2018	10562.052	10731.622	60	Marcellus
49	9/25/2018	10360.968	10530.538	60	Marcellus
50	9/26/2018	10159.884	10329.454	60	Marcellus
51	9/26/2018	9958.8	10128.37	60	Marcellus
52	9/26/2018	9757.716	9927.286	60	Marcellus
53	9/27/2018	9556.632	9726.202	60	Marcellus
54	9/27/2018	9355.548	9525.118	60	Marcellus
55	9/27/2018	9154.464	9324.034	60	Marcellus
56	9/28/2018	8953.38	9122.95	60	Marcellus
57	9/28/2018	8752.296	8921.866	60	Marcellus
58	9/28/2018	8551.212	8720.782	60	Marcellus
59	9/28/2018	8350.128	8519.698	60	Marcellus
60	9/29/2018	8149.044	8318.614	60	Marcellus
61	9/29/2018	7947.96	8117.53	60	Marcellus
62	9/29/2018	7746.876	7916.446	60	Marcellus
63	9/29/2018	7545.792	7715.362	60	Marcellus
64	9/30/2018	7344.708	7514.278	60	Marcellus
65	9/30/2018	7143.624	7313.194	60	Marcellus
66	9/30/2018	6942.54	7112.11	60	Marcellus
67	9/30/2018	6741.456	6911.026	60	Marcellus

API 47-095-02424 Farm Name Jarret W. Shepherd et al Well Number Haga 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	9/9/2018	67.55	7931	5924	3684	238740	8894.571	N/A
2	9/9/2018	69.62	7917	5723	3146	360020	7767.214	N/A
3	9/10/2018	70.24	8073	6078	3414	359520	7564.286	N/A
4	9/10/2018	68.8	8154	5952	4110	359580	9001.238	N/A
5	9/10/2018	69.7	8026	5686	3785	355700	9835.095	N/A
6	9/10/2018	71.82	8017	5774	3911	358280	7768.595	N/A
7	9/11/2018	71.42	8068	5871	3797	361980	7748.429	N/A
8	9/11/2018	70.8	8070	5569	3952	362540	7825.095	N/A
9	9/11/2018	70.67	7868	5586	3892	358400	8109.19	N/A
10	9/12/2018	65.67	7560	5346	3998	360580	8065.667	N/A
11	9/12/2018	68	7670	5522	3517	354100	9741.714	N/A
12	9/12/2018	67.36	7556	5259	3895	360440	7730.667	N/A
13	9/12/2018	69.28	7786	5204	4082	352360	7416.81	N/A
14	9/13/2018	70.45	7830	5527	3673	369020	7503.857	N/A
15	9/13/2018	77.4	8071	5320	3671	357500	7618.952	N/A
16	9/13/2018	72.9	7761	5646	3768	360580	7633.19	N/A
17	9/13/2018	71.77	7835	5672	4435	344265	7514.357	N/A
18	9/14/2018	69.4	7808	6011	3678	358440	9283.167	N/A
19	9/16/2018	70.8	8024	5880	3949	367780	8247.571	N/A
20	9/16/2018	74.96	7832	4953	4154	357520	7491.833	N/A
21	9/17/2018	74.43	8032	5063	3894	364780	7605.333	N/A
22	9/17/2018	77.2	8054	5880	4382	362900	7464.357	N/A
23	9/17/2018	76	8131	5752	4224	356840	7368.452	N/A
24	9/17/2018	70.63	7650	5582	3703	362420	7657.238	N/A
25	9/18/2018	69.11	7635	5389	3702	354360	7337.857	N/A
26	9/18/2018	73.91	8120	5299	3930	355460	9140.167	N/A
27	9/19/2018	71.08	8026	5705	3550	367550	7534.619	N/A
28	9/19/2018	77.5	8072	5937	3553	357520	7324.738	N/A
29	9/20/2018	72.7	7585	5920	3722	355260	7347.167	N/A
30	9/20/2018	72.07	7776	5429	3704	360580	7553.095	N/A
31	9/20/2018	76.3	7730	5046	3156	362267	7542.929	N/A
32	9/20/2018	78.05	7720	5236	3565	356800	7388.143	N/A
33	9/21/2018	75.09	7842	4623	3736	359460	7538.143	N/A
34	9/21/2018	78.7	7968	5091	3621	358640	7250.667	N/A
35	9/21/2018	78.2	8113	6008	3680	360780	7314.929	N/A
36	9/21/2018	75.89	7645	5356	3983	359320	9010.048	N/A
37	9/22/2018	75.8	7232	4931	3126	359740	7426.238	N/A
38	9/22/2018	77.9	7093	5255	3939	357480	7471.952	N/A
39	9/22/2018	78.83	7263	5767	8430	297540	9056.333	N/A
40	9/23/2018	78.1	7454	5819	3850	389020	7644.19	N/A
41	9/23/2018	77.3	7500	5648	3586	374320	7616.262	N/A
42	9/23/2018	72.31	7073	5624	3646	378180	7716.048	N/A
43	9/24/2018	78.13	7480	4503	3624	353580	7310.524	N/A
44	9/24/2018	77.7	7589	6051	3400	359600	7706.714	N/A
45	9/24/2018	72.99	7102	5903	3760	355980	7266.786	N/A
46	9/25/2018	71.73	6980	5541	3599	362120	7375.167	N/A
47	9/25/2018	77.04	7301	4947	3706	358160	7419.738	N/A
48	9/25/2018	77.25	7361	4599	3667	365120	7340.119	N/A
49	9/25/2018	76.28	7253	5802	3612	359360	0	N/A
50	9/26/2018	71.09	7480	5966	3709	363540	7857.905	N/A
51	9/26/2018	75.93	7292	5170	3674	357180	6974.857	N/A
52	9/26/2018	78.59	7383	4882	3722	357260	8333.69	N/A
53	9/27/2018	80.15	7013	4064	3751	359100	7224.167	N/A
54	9/27/2018	76.01	7295	5700	3716	360290	7357.952	N/A
55	9/27/2018	75.93	7094	5255	3815	359040	7458.405	N/A
56	9/28/2018	73.3	7264	4616	4320	361980	8367.357	N/A
57	9/28/2018	77.42	7535	5537	3721	363620	7343.714	N/A
58	9/28/2018	76.89	7268	5601	3697	363700	7440.881	N/A
59	9/28/2018	78.48	7323	5985	3451	357020	7286.167	N/A
60	9/29/2018	78.37	7229	5983	3666	351940	7161.286	N/A
61	9/29/2018	77.11	6941	4368	3999	359440	7370.405	N/A
62	9/29/2018	76.14	7117	5558	3785	360880	7268.429	N/A
63	9/29/2018	76.9	7262	5989	3917	358740	7275.595	N/A
64	9/30/2018	79.87	6731	5781	3895	361080	7296.595	N/A
65	9/30/2018	77.79	7121	5680	3694	357220	7223.595	N/A
66	9/30/2018	78.24	6854	6023	3330	354860	7270.381	N/A
67	9/30/2018	74.36	6800	5901	3401	356960	7322.881	N/A
	AVG=	74	7,577	5,497	3,818	23,946,332	510,324	TOTAL

API 47-095-02424 Farm Name Jarret W. Shepherd et al Well Number Haga 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
Silty Sandstone	0	227	0	227
Sandy siltstone	227	667	227	667
Sandstone	667	887	667	887
Silty Sandstone	887	997	887	997
limey siltstone	997	1,147	997	1,147
silty sandstone, tr. coal	1,147	1,287	1,147	1,287
silty sandstone	1,287	1,367	1,287	1,367
silty shale	1,367	1,587	1,367	1,587
sandstone, tr coal	1,587	1,647	1,587	1,647
silty sandstone	1,647	1,667	1,647	1,667
sandstone	1,667	1,807	1,667	1,807
sandy shale	1,807	1,887	1,807	1,887
shaly sand	1,887	2,027	1,887	2,027
Big Lime	2,027	2,286	2,027	2,286
Big Injun	2,286	2,636	2,286	2,637
Gantz Sand	2,636	2,811	2,637	2,811
Fifty Foot Sandstone	2,811	2,962	2,811	2,963
Gordon	2,962	3,086	2,963	3,087
Fifth Sandstone	3,086	3,485	3,087	3,493
Bayard	3,485	3,642	3,493	3,653
Warren	3,642	4,036	3,653	4,055
Speechley	4,036	4,316	4,055	4,339
Balltown	4,316	4,747	4,339	4,778
Bradford	4,747	5,124	4,778	5,163
Benson	5,124	5,329	5,163	5,372
Alexander	5,329	5,864	5,372	5,911
Rhinestreet	5,864	6,205	5,911	6,286
Sycamore	6,205	6,299	6,286	6,419
Middlesex	6,299	6,392	6,419	6,599
Burkett	6,392	6,416	6,599	6,657
Tully	6,416	6,426	6,657	6,686
Marcellus	6,426	NA	6,686	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:	9/9/2018
Job End Date:	9/30/2018
State:	West Virginia
County:	Tyler
API Number:	47-095-02424-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Haga Unit 2H
Latitude:	39.38548100
Longitude:	-80.95137200
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,527
Total Base Water Volume (gal):	22,852,082
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	88.65943	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.12083	

WG-36 GELLING AGENT	Halliburton	Gelling Agent							
					Listed Below				
SAND-PREMIUM WHITE-40/70	Halliburton	Proppant							
					Listed Below				
HYDROCHLORIC ACID	Halliburton	Solvent							
					Listed Below				
EXCELERATE PS-2	Halliburton	Friction Reducer							
					Listed Below				
MC B-8614	Halliburton	Biocide							
					Listed Below				
SAND-COMMON WHITE-100 MESH	Halliburton	Proppant							
					Listed Below				
FDP S1296-17	Halliburton	Corrosion Inhibitor							
					Listed Below				
SAND-PREMIUM WHITE 30/50	Halliburton	Proppant							
					Listed Below				

HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor											
					Listed Below								
SCALECHEK LP-70	Halliburton	Scale Inhibitor											
					Listed Below								
SP BREAKER	Halliburton	Breaker											
					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					11.15307	
			Guar gum		9000-30-0		100.00000					0.02564	
			Hydrotreated light petroleum distillate		64742-47-8		30.00000					0.01860	
			Acrylamide acrylate polymer		Proprietary		30.00000					0.01860	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Inorganic salt		Proprietary		30.00000					0.01860	
			Hydrochloric acid		7647-01-0		15.00000					0.01129	
			Ethylene glycol		107-21-1		60.00000					0.00836	
			Glutaraldehyde		111-30-8		30.00000					0.00291	
			Telmer		Proprietary		10.00000					0.00139	
			Sodium persulfate		7775-27-1		100.00000					0.00081	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides		68424-85-1		5.00000					0.00049	
			Sodium polyacrylate		9003-04-7		1.00000					0.00014	
			Methanol		67-56-1		100.00000					0.00010	
			Ethoxylated alcohols		Proprietary		30.00000					0.00003	

LATITUDE 39°25'00"

9,809'

LATITUDE 39°22'30"

5,017' TO BOTTOM HOLE

Antero Resources Corporation Well No. Haga Unit 2H

AS DRILLED DATA:
WELL 2H TOP HOLE INFORMATION:
 N: 325,824ft E: 1,589,786ft
 LAT: 39°23'07.73" LON: 80°57'04.94"
BOTTOM HOLE INFORMATION:
 N: 313,173ft E: 1,594,380ft
 LAT: 39°21'03.44" LON: 80°56'03.86"
 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: 4,359,565m E: 504,202m
BOTTOM HOLE INFORMATION:
 N: 4,355,735m E: 505,666m

05/03/2019

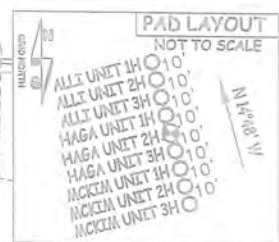
WV NORTH ZONE GRID NORTH

758' TO BOTTOM HOLE

1,359'

LONGITUDE 80°55'00"

LONGITUDE 80°55'00"



3 WATER WELLS WERE LOCATED WITHIN 2000' OF CENTER OF PAD

- 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 HEREBY 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 INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

JOB # 16-062WA
 DRAWING # HAGAZHAD
 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 +/-
 (O) Proposed Well Path
 (X) As Drilled Well Path
 DOUGLAS R. ROWE P.S. 2202
 DATE 02/13/19
 OPERATOR'S WELL# HAGA UNIT 2H

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
 (IF "GAS") PRODUCTION ___ 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 JOEYWIN FAMILY TRUST; RUTH M. HUFFORD; RALPH D. HACKER; HUNTERS INC.; VELDIA M. BISHOP; LEASE ACREAGE 431.53 AC; 93.78 AC; 84.81 AC; 471.20 AC; 70 AC; EVERETT MCCULLOUGH ET UX; EUGENE R. HILL TRUST; HAUGHT FAMILY TRUST; SONIA UPTON; RONALD L. RIDGWAY ET UX; WILLIAM F. ZICKFOOSE; MARWANA LEE MATTHEW 188.72 AC; 104.3 AC; 323 AC; 14.52 AC; 45.25 AC; 45 AC; 16.75 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 6,523' TVD 20,213' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
 FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME

PERMIT