

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

479502425

API 47-085-02425 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 3H
 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 4359562m Easting 504203m
 Landing Point of Curve Northing 4359502m Easting 504404m
 Bottom Hole Northing 4355892m Easting 505809m

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 1/3/2018
 Date completion activities began 9/16/2018 Date completion activities ceased 11/22/2018
 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 - 02425 Farm name Jarret W. Shepherd et al Well number Haga Unit 3H

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"	551'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2582'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	19887'	New	23#, HCP-110	N/A	Y
Tubing		2-3/8"	6697'		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	284 sx	15.6	1.21	344	0'	8 Hrs.
Surface	Class A	490 sx	15.6	1.21	593	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	708 sx (Lead) 1939 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.45 (Lead), 1.94 (Tail)	4788	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 19887' MD, 6531' TVD (BHL), 6533 (Deepest Point Drilled) Loggers TD (ft) 19887' MD

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

Plug back procedure N/A

Kick off depth (ft) 5900'

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- 085 - 02425 Farm name Jarret W. Shepherd et al Well number Haga Unit 3H

PRODUCING FORMATION(S)	DEPTHS		
Marcellus	6433' (TOP)	TVD	6773' (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 10032 mcfpd Oil 245 bpd NGL --- bpd Water 0 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 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

API 47-095-02425 Farm Name Jarret W. Shepherd et al Well Number Haga Unit 3H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/16/2018	19704	19795	60	Marcellus
2	9/16/2018	19502.778	19672.463	60	Marcellus
3	9/16/2018	19301.556	19471.241	60	Marcellus
4	9/17/2018	19100.334	19270.019	60	Marcellus
5	9/17/2018	18899.112	19068.797	60	Marcellus
6	9/17/2018	18697.89	18867.575	60	Marcellus
7	9/17/2018	18496.668	18666.353	60	Marcellus
8	9/18/2018	18295.446	18465.131	60	Marcellus
9	9/18/2018	18094.224	18263.909	60	Marcellus
10	9/19/2018	17893.002	18062.687	60	Marcellus
11	9/19/2018	17691.78	17861.465	60	Marcellus
12	9/19/2018	17490.558	17660.243	60	Marcellus
13	9/20/2018	17289.336	17459.021	60	Marcellus
14	9/20/2018	17088.114	17257.799	60	Marcellus
15	9/20/2018	16886.892	17056.577	60	Marcellus
16	9/21/2018	16685.67	16855.355	60	Marcellus
17	9/21/2018	16484.448	16654.133	60	Marcellus
18	9/21/2018	16283.226	16452.911	60	Marcellus
19	9/21/2018	16082.004	16251.689	60	Marcellus
20	9/22/2018	15880.782	16050.467	60	Marcellus
21	9/22/2018	15679.56	15849.245	60	Marcellus
22	9/23/2018	15478.338	15648.023	60	Marcellus
23	9/23/2018	15277.116	15446.801	60	Marcellus
24	9/23/2018	15075.894	15245.579	60	Marcellus
25	9/24/2018	14874.672	15044.357	60	Marcellus
26	9/24/2018	14673.45	14843.135	60	Marcellus
27	9/24/2018	14472.228	14641.913	60	Marcellus
28	9/24/2018	14271.006	14440.691	60	Marcellus
29	9/25/2018	14069.784	14239.469	60	Marcellus
30	9/25/2018	13868.562	14038.247	60	Marcellus
31	9/26/2018	13667.34	13837.025	60	Marcellus
32	9/26/2018	13466.118	13635.803	60	Marcellus
33	9/27/2018	13264.896	13434.581	60	Marcellus
34	9/27/2018	13063.674	13233.359	60	Marcellus
35	9/27/2018	12862.452	13032.137	60	Marcellus
36	9/27/2018	12661.23	12830.915	60	Marcellus
37	9/28/2018	12460.008	12629.693	60	Marcellus
38	9/28/2018	12258.786	12428.471	60	Marcellus
39	9/28/2018	12057.564	12227.249	60	Marcellus
40	9/28/2018	11856.342	12026.027	60	Marcellus
41	9/29/2018	11655.12	11824.805	60	Marcellus
42	9/29/2018	11453.898	11623.583	60	Marcellus
43	9/29/2018	11252.676	11422.361	60	Marcellus
44	9/30/2018	11051.454	11221.139	60	Marcellus
45	9/30/2018	10850.232	11019.917	60	Marcellus
46	9/30/2018	10649.01	10818.695	60	Marcellus
47	9/30/2018	10447.788	10617.473	60	Marcellus
48	10/1/2018	10246.566	10416.251	60	Marcellus
49	10/1/2018	10045.344	10215.029	60	Marcellus
50	10/2/2018	9844.122	10013.807	60	Marcellus
51	10/2/2018	9642.9	9812.585	60	Marcellus
52	10/2/2018	9441.678	9611.363	60	Marcellus
53	10/2/2018	9240.456	9410.141	60	Marcellus
54	10/3/2018	9039.234	9208.919	60	Marcellus
55	10/3/2018	8838.012	9007.697	60	Marcellus
56	10/3/2018	8636.79	8806.475	60	Marcellus
57	10/3/2018	8435.568	8605.253	60	Marcellus
58	10/4/2018	8234.346	8404.031	60	Marcellus
59	10/4/2018	8033.124	8202.809	60	Marcellus
60	10/4/2018	7831.902	8001.587	60	Marcellus
61	10/5/2018	7630.68	7800.365	60	Marcellus
62	10/5/2018	7429.458	7599.143	60	Marcellus
63	10/5/2018	7228.236	7397.921	60	Marcellus
64	10/6/2018	7027.014	7196.699	60	Marcellus
65	10/6/2018	6825.792	6995.477	60	Marcellus

API 47-095-02425 Farm Name Jarret W. Shepherd et al Well Number Haga Unit 3H

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	9/16/2018	64.56	4464	4464	3528	238520	7948.452	N/A
2	9/16/2018	70.2	8041	0	4241	378700	8519.333	N/A
3	9/16/2018	66.77	8067	6014	4217	378200	8075.214	N/A
4	9/17/2018	69.81	8042	5673	3953	381580	7400.262	N/A
5	9/17/2018	73.6	8345	5543	3863	378440	7907.524	N/A
6	9/17/2018	70.16	7925	5299	4000	380900	7867.452	N/A
7	9/17/2018	69.32	7893	5535	3942	376520	7616.595	N/A
8	9/18/2018	72.7	7217	0	4136	379980	8360.881	N/A
9	9/18/2018	72.04	8368	5594	3881	375360	7423.19	N/A
10	9/19/2018	74.8	8305	5735	3841	374550	7619.976	N/A
11	9/19/2018	75.8	8350	5635	3769	380330	7487.595	N/A
12	9/19/2018	72.38	7976	6228	3857	370811	7495.881	N/A
13	9/20/2018	74.6	8154	5530	3428	375560	7989.048	N/A
14	9/20/2018	72.6	7827	5140	3648	369700	7903.976	N/A
15	9/20/2018	76.7	6355	6355	3795	376180	7689.286	N/A
16	9/21/2018	77.71	7996	5989	3776	375880	7683.5	N/A
17	9/21/2018	74.7	8089	6296	3736	373450	7587.143	N/A
18	9/21/2018	70.12	7781	5494	3407	369670	7731.738	N/A
19	9/21/2018	71.89	7189	6968	3584	370440	7451.571	N/A
20	9/22/2018	75.5	7894	6704	3446	375960	7887.31	N/A
21	9/22/2018	75.3	7482	6486	3611	375520	7532.976	N/A
22	9/23/2018	76.61	7845	5998	3816	381240	8054.048	N/A
23	9/23/2018	75	7952	5555	3392	380040	7421.095	N/A
24	9/23/2018	70.26	7594	6447	7355	377420	7355.119	N/A
25	9/24/2018	66.96	7693	4948	3601	373600	7429.714	N/A
26	9/24/2018	75.4	7978	6490	3786	380700	7345.667	N/A
27	9/24/2018	75	8122	6022	3717	378380	7426.119	N/A
28	9/24/2018	70.37	7716	5820	3705	375080	7394.405	N/A
29	9/25/2018	75.05	7679	5435	3815	375350	7544.81	N/A
30	9/25/2018	76.94	7985	5665	3759	377530	7364.714	N/A
31	9/26/2018	69.82	8104	5255	3754	375030	7159.81	N/A
32	9/26/2018	69.41	7743	5760	3639	378090	7133.929	N/A
33	9/27/2018	74	8127	6299	3720	377830	7444.786	N/A
34	9/27/2018	73.23	8092	6141	3861	376650	7423.405	N/A
35	9/27/2018	73.8	7778	5531	3870	373060	7495.524	N/A
36	9/27/2018	71.76	7789	5644	3860	357830	7061.952	N/A
37	9/28/2018	74.6	7860	4974	3696	380080	7363.214	N/A
38	9/28/2018	73.52	7858	4881	3805	358020	7058.667	N/A
39	9/28/2018	72.88	7850	6440	3992	376500	7295.476	N/A
40	9/28/2018	74.34	7900	5742	3844	383540	7307.762	N/A
41	9/29/2018	76.74	7855	5515	3681	381990	7197.786	N/A
42	9/29/2018	72.75	7976	6497	3642	379470	7247.619	N/A
43	9/29/2018	74.61	7551	5872	3683	380020	7267.286	N/A
44	9/30/2018	74.31	7468	3932	3535	378420	7279.905	N/A
45	9/30/2018	76.04	7884	6036	3874	380860	7160.667	N/A
46	9/30/2018	76.1	7681	7019	3739	380060	7125.119	N/A
47	9/30/2018	74.39	7255	6095	3571	382270	7194.929	N/A
48	10/1/2018	72.8	6787	4196	3750	378850	7272.976	N/A
49	10/1/2018	75.77	7931	4327	3590	377250	7190.571	N/A
50	10/2/2018	76.59	7696	5882	3584	387240	7216	N/A
51	10/2/2018	76.11	7796	5084	3715	372340	7175.262	N/A
52	10/2/2018	75.96	7748	5478	3727	359940	7031.333	N/A
53	10/2/2018	77.8	7749	5023	3207	367560	6985.405	N/A
54	10/3/2018	77.3	7646	3957	3690	366840	7048.595	N/A
55	10/3/2018	76.97	7792	5631	3592	364660	6831.786	N/A
56	10/3/2018	74.7	7376	4919	3976	369580	7013.286	N/A
57	10/3/2018	75.8	7437	5989	3672	368400	7139.095	N/A
58	10/4/2018	74.43	7028	5380	3648	355920	6932.548	N/A
59	10/4/2018	77.63	7753	5171	3871	360220	6860.619	N/A
60	10/4/2018	77	7474	5345	3568	361120	6934.976	N/A
61	10/5/2018	76.4	7452	6152	3404	360260	7058.286	N/A
62	10/5/2018	77.03	7403	5329	3671	365320	6949.214	N/A
63	10/5/2018	76.2	7244	5258	3700	357280	7091.69	N/A
64	10/6/2018	75.7	7020	5783	3472	368530	7363.476	N/A
65	10/6/2018	76.54	7096	5329	3290	356420	7718	N/A
	AVG=	74	7,685	5,460	3,777	24,153,041	481,546	TOTAL

API 47-095-02425 Farm Name Jarret W. Shepherd et al Well Number Haga Unit 3H

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	2,019	est 1887	2,024
Big Lime	2,019	2,267	2,024	2,272
Big Injun	2,267	2,645	2,272	2,650
Gantz Sand	2,645	2,814	2,650	2,819
Fifty Foot Sandstone	2,814	2,968	2,819	2,974
Gordon	2,968	3,087	2,974	3,094
Fifth Sandstone	3,087	3,489	3,094	3,506
Bayard	3,489	3,639	3,506	3,658
Warren	3,639	4,036	3,658	4,066
Speechley	4,036	4,304	4,066	4,343
Balltown	4,304	4,746	4,343	4,796
Bradford	4,746	5,107	4,796	5,171
Benson	5,107	5,336	5,171	5,405
Alexander	5,336	5,861	5,405	5,944
Rhinestreet	5,861	6,210	5,944	6,339
Sycamore	6,210	6,303	6,339	6,478
Middlesex	6,303	6,399	6,478	6,680
Burkett	6,399	6,421	6,680	6,735
Tully	6,421	6,433	6,735	6,773
Marcellus	6,433	NA	6,773	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:	9/16/2018
Job End Date:	10/6/2018
State:	West Virginia
County:	Tyler
API Number:	47-095-02425-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Haga Unit 3H
Latitude:	39.38545600
Longitude:	-80.95136100
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,533
Total Base Water Volume (gal):	21,281,924
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	87.77478	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.22581	



EXCELERATE PS-2	Halliburton	Friction Reducer		Listed Below				
MC S-2510T	Halliburton	Scale Inhibitor						
SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant		Listed Below				
SAND- PREMIUM WHITE-40/70, BULK	Halliburton	Proppant		Listed Below				
HYDROCHLORI C ACID	Halliburton	Solvent		Listed Below				
HAL-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor		Listed Below				
FDP-S1296-17	Halliburton	Corrosion Inhibitor		Listed Below				
SP BREAKER	Halliburton	Breaker		Listed Below				

WG-36 GELLING AGENT	Halliburton	Gelling Agent						
				Listed Below				
MC B-8614	Halliburton	Biocide		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	11.95177			
		Hydrochloric acid	7647-01-0	15.00000	0.02608			
		Hydroreated light petroleum distillate	64742-47-8	30.00000	0.01830			
		Acrylamide acrylate polymer	Proprietary	30.00000	0.01830		Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226	
		Inorganic salt	Proprietary	30.00000	0.01830			
		Guar gum	9000-30-0	100.00000	0.01574			
		Ethylene Glycol	107-21-1	60.00000	0.00814			
		Glutaraldehyde	111-30-8	30.00000	0.00259			
		Neutralized Polyacrylic Emulsion	Proprietary	10.00000	0.00136			
		Sodium persulfate	7775-27-1	100.00000	0.00047			
		Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00043			
		Methanol	67-56-1	100.00000	0.00012			
		Ethanol	64-17-5	1.00000	0.00009			
		Modified thiourea polymer	Proprietary	30.00000	0.00004			
		Ethoxylated alcohols	Proprietary	30.00000	0.00002			
		Fatty acids, tall oil	Proprietary	30.00000	0.00002			
		Propargyl alcohol	107-19-7	10.00000	0.00001			

LATITUDE 39°25'00"

9,807'

LATITUDE 39°22'30"

4,547' TO BOTTOM HOLE

Antero Resources Corporation Well No. Haga Unit 3H

AS DRILLED DATA:
WELL 3H TOP HOLE INFORMATION:
 N: 325,814ft E: 1,589,788ft
 LAT: 39°23'07.64" LON: 80°57'04.90"
BOTTOM HOLE INFORMATION:
 N: 313,681ft E: 1,594,858ft
 LAT: 39°21'08.53" LON: 80°55'57.88"
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE
 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 3H TOP HOLE INFORMATION:
 N: 4,359,562m E: 504,203m
BOTTOM HOLE INFORMATION:
 N: 4,355,892m E: 505,809m

05/03/2019

WV NORTH ZONE
GRID NORTH

8,143' TO BOTTOM HOLE

11,369'

LONGITUDE 80°55'00"

LONGITUDE 80°55'00"



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

- 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 ALLEGHENY 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 # 16-062WA
 DRAWING # HAGA3HAD
 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

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
 O - As Drilled Well Path
 DOUGLAS R. ROWE P.S. 2202
 DATE 02/13/19
 OPERATOR'S WELL# HAGA UNIT 3H

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 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 JOELYNN FAMILY TRUST; RUTH M. HUFFORD; RALPH D. HACKER; VELDA M. BISHOP; EILEEN WILLIAMS; EVERETT MCCULLOUGH ET UX; HUNTERS INC.; HAUGHT FAMILY TRUST; RONALD L. RIDGWAY ET UX; WILLIAM F. ZICKEFOOSE LEASE ACREAGE 431.53 AC.; 93.78 AC.; 84.61 AC.; 70 AC.; 188.72 AC.; 471.20 AC.; 323 AC.; 45.25 AC.; 45 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 6,531' TVD 19,887' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313
 FORM WW-6 DENVER, CO 80202

COUNTY NAME

PERMIT