

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

RECEIVED
Office of Oil and Gas

NOV 1 2021

WV Department of
Environmental Protection

API 47 - 095 - 02723 County Wetzel District Ellsworth/Magnolia
Quad Porter Falls/ Paden City Pad Name Elk Fork Field/Pool Name ----
Farm name Patricia Ann Heintzman Well Number Yough 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 4376856m Easting 511139m
Landing Point of Curve Northing 4377206.28m Easting 511495.38m
Bottom Hole Northing 4381688m Easting 509981m

Elevation (ft) 1126' 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 12/16/2020 Date drilling commenced 1/8/2021 Date drilling ceased 2/28/2021
Date completion activities began 4/20/2021 Date completion activities ceased 5/22/2021
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 408' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1703' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 58' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:

Den
12/31/2021

API 47-095 - 02723 Farm name Patricia Ann Heintzman Well number Yough 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"	80'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	367'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2575'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	22855'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6969'		4.7#, P-110		
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	266 sx	15.6	1.18	56	0'	8 Hrs.
Surface	Class A	429 sx	15.6	1.19	92	0'	8 Hrs.
Coal							
Intermediate 1	Class A	884 sx	15.6	1.19	192	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	792 sx (Lead) 3623 sx (Tail)	13.5 (Lead), 15.2(Tail)	1.4 (Lead), 1.26 (Tail)	813	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 22899' MD, 6494' TVD (BHL), 6540' (Deepest Point Drilled) Loggers TD (ft) 22899' MD

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

Plug back procedure N/A

Kick off depth (ft) 6163'

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

API 47- 095 - 02723 Farm name Patricia Ann Heintzman Well number Yough 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.

API 47- 095 - 02723 Farm name Patricia Ann Heintzman Well number Yough Unit 1H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6480' (TOP) TVD	7044' (TOP) MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2800 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 9517 mcfpd Oil 521 bpd NGL --- bpd Water 1986 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 H & P Drilling
Address 912 N Eagle Valley Rd City Howard State PA Zip 16841

Logging Company Nine Energy Services
Address 6500 West Fwy City Fort Worth State TX Zip 76116

Cementing Company Schlumberger Oilfield Services
Address 300 Schlumberger Dr City Sugarland State TX Zip 77478

Stimulating Company Halliburton
Address 3000 W. Sam Houston Pkwy City Houston State TX Zip 76114

Please insert additional pages as applicable.

Completed by Brand Hankins Telephone 303-357-7223
Signature [Signature] Title Completions Technician Date 12/27/2021

API 47-095-02723 Farm Name Patricia Ann Heintzman Well Number Yough Unit 1H

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1		22788.2	22747.6	36	Marcellus
2	4/20/2021	22708.52035	22541.1221	36	Marcellus
3	4/21/2021	22505.24242	22337.8442	36	Marcellus
4	4/21/2021	22301.9645	22134.5662	36	Marcellus
5	4/21/2021	22098.68658	21931.2883	36	Marcellus
6	4/21/2021	21895.40866	21728.0104	36	Marcellus
7	4/22/2021	21692.13074	21524.7325	36	Marcellus
8	4/22/2021	21488.85281	21321.4545	36	Marcellus
9	4/22/2021	21285.57489	21118.1766	36	Marcellus
10	4/23/2021	21082.29697	20914.8987	36	Marcellus
11	4/23/2021	20879.01905	20711.6208	36	Marcellus
12	4/23/2021	20675.74113	20508.3429	36	Marcellus
13	4/24/2021	20472.4632	20305.0649	36	Marcellus
14	4/24/2021	20269.18528	20101.787	36	Marcellus
15	4/24/2021	20065.90736	19898.5091	36	Marcellus
16	4/24/2021	19862.62944	19695.2312	36	Marcellus
17	4/25/2021	19659.35152	19491.9532	36	Marcellus
18	4/25/2021	19456.07959	19288.6753	36	Marcellus
19	4/25/2021	19252.79567	19085.3974	36	Marcellus
20	4/26/2021	19049.51775	18882.1195	36	Marcellus
21	4/26/2021	18846.23983	18678.8416	36	Marcellus
22	4/26/2021	18642.9619	18475.5636	36	Marcellus
23	4/27/2021	18439.68398	18272.2857	36	Marcellus
24	4/27/2021	18236.40606	18069.0078	36	Marcellus
25	4/27/2021	18033.12814	17865.7299	36	Marcellus
26	4/27/2021	17829.85022	17662.4519	36	Marcellus
27	4/28/2021	17626.57229	17459.174	36	Marcellus
28	4/28/2021	17423.29437	17255.8961	36	Marcellus
29	4/28/2021	17220.01645	17052.6182	36	Marcellus
30	4/28/2021	17016.73853	16849.3403	36	Marcellus
31	4/29/2021	16813.46061	16646.0623	36	Marcellus
32	4/29/2021	16610.18268	16442.7844	36	Marcellus
33	4/29/2021	16406.90476	16239.5065	36	Marcellus
34	4/30/2021	16203.62684	16036.2286	36	Marcellus
35	4/30/2021	16000.34892	15832.9506	36	Marcellus
36	4/30/2021	15797.071	15629.6727	36	Marcellus
37	4/30/2021	15593.79307	15426.3948	36	Marcellus
38	5/1/2021	15390.51515	15223.1169	36	Marcellus
39	5/1/2021	15187.23723	15019.839	36	Marcellus
40	5/1/2021	14983.95931	14816.561	36	Marcellus
41	5/2/2021	14780.68139	14613.2831	36	Marcellus
42	5/2/2021	14577.40346	14410.0052	36	Marcellus
43	5/2/2021	14374.12554	14206.7273	36	Marcellus
44	5/2/2021	14170.84762	14003.4494	36	Marcellus
45	5/2/2021	13967.5697	13800.1714	36	Marcellus
46	5/3/2021	13764.29177	13596.8935	36	Marcellus
47	5/3/2021	13561.01385	13393.6156	36	Marcellus
48	5/3/2021	13357.73593	13190.3377	36	Marcellus
49	5/4/2021	13154.45801	12987.0597	36	Marcellus
50	5/4/2021	12951.18009	12783.7818	36	Marcellus
51	5/4/2021	12747.90216	12580.5039	36	Marcellus
52	5/4/2021	12544.62424	12377.226	36	Marcellus
53	5/5/2021	12341.34632	12173.9481	36	Marcellus
54	5/5/2021	12138.0684	11970.6701	36	Marcellus
55	5/5/2021	11934.79048	11767.3922	36	Marcellus
56	5/6/2021	11731.51255	11564.1143	36	Marcellus
57	5/6/2021	11528.23463	11360.8364	36	Marcellus
58	5/6/2021	11324.95671	11157.5584	36	Marcellus
59	5/7/2021	11121.67879	10954.2805	36	Marcellus
60	5/7/2021	10918.40087	10751.0026	36	Marcellus
61	5/7/2021	10715.12294	10547.7247	36	Marcellus
62	5/8/2021	10511.84502	10344.4468	36	Marcellus
63	5/8/2021	10308.5671	10141.1688	36	Marcellus
64	5/8/2021	10105.28918	9937.89091	36	Marcellus
65	5/8/2021	9902.011255	9734.61299	36	Marcellus
66	5/9/2021	9698.733333	9531.33506	36	Marcellus
67	5/9/2021	9495.455411	9328.05714	36	Marcellus
68	5/10/2021	9292.177489	9124.77922	36	Marcellus
69	5/10/2021	9088.899567	8921.5013	36	Marcellus
70	5/10/2021	8885.621645	8718.22338	36	Marcellus
71	5/10/2021	8682.343723	8514.94545	36	Marcellus
72	5/10/2021	8479.065801	8311.66753	36	Marcellus
73	5/11/2021	8275.787879	8108.38961	36	Marcellus
74	5/11/2021	8072.509957	7905.11169	36	Marcellus
75	5/11/2021	7869.232035	7701.83377	36	Marcellus
76	5/11/2021	7665.954113	7498.55584	36	Marcellus
77	5/11/2021	7462.67619	7295.27792	36	Marcellus
78	5/11/2021	7259.398268	7092	36	Marcellus

12/31/2021

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 (bbbls)	Amount of Nitrogen/ other (units)
1		8.11	7589	0	0	0	3323	N/A
2	4/20/2021	82.15	9713	5577	3633	406520	336308	N/A
3	4/21/2021	83.11	9604	4138	3883	410640	311684	N/A
4	4/21/2021	81.94	9630.53	5562.75	3856.05	402170	312584	N/A
5	4/21/2021	82.22	9786	6134	4269	405240	311237	N/A
6	4/21/2021	85.65	9661.64	5347.54	3865.07	411770	311154	N/A
7	4/22/2021	85.92	9646	5452	3848	407300	310272	N/A
8	4/22/2021	86.28	9994	5776	3413	416280	297026	N/A
9	4/22/2021	88.22	10010	5949	4313	410120	290664	N/A
10	4/23/2021	87.82	10013	5692	3907	409040	291019	N/A
11	4/23/2021	84.82	9979	5815	4049	403260	295534	N/A
12	4/23/2021	88.45	10086	5838	4220.94	412880	311343	N/A
13	4/24/2021	88.61	9934	5850	4244	412800	294713	N/A
14	4/24/2021	86.54	9780	5684	3931	407520	293665	N/A
15	4/24/2021	88.61	9954	5787	4528	416660	293754	N/A
16	4/24/2021	89.7	9980	5617	4204	408780	290814	N/A
17	4/25/2021	87.87	9882	5529	4217	405620	300051	N/A
18	4/25/2021	88.84	9927	5555	4220	405240	292042	N/A
19	4/25/2021	90.45	9818	5726	4289	411960	289473	N/A
20	4/26/2021	90.51	9608	5406	4467	408320	295305	N/A
21	4/26/2021	91.81	9824	5190	4059	411760	294056	N/A
22	4/26/2021	91.94	9577	5290	4286	409920	289313	N/A
23	4/27/2021	90.42	9377	5537	4090	413160	290826	N/A
24	4/27/2021	93.57	9671	5482	3896	403920	292015	N/A
25	4/27/2021	91.83	9594	5552	3915	405360	293859	N/A
26	4/27/2021	91.99	9442	5463	3912	406940	289629	N/A
27	4/28/2021	93.54	9490	5837	4059	407840	290513	N/A
28	4/28/2021	92.4	9559	5384	3986	405480	291452	N/A
29	4/28/2021	92.85	9615	5808	3939	403540	294483	N/A
30	4/28/2021	92.8	9290	5733	3975	403080	292004	N/A
31	4/29/2021	92.88	9244	4692	3736	408520	290319	N/A
32	4/29/2021	91.06	8979	5738	4258	413260	290981	N/A
33	4/29/2021	91.66	8950	5352	4396	406820	290703	N/A
34	4/30/2021	94.18	8935	5683	4141	411640	290857	N/A
35	4/30/2021	91.86	8852	5647	3892	410880	291838	N/A
36	4/30/2021	92.92	8904	6160	3899	406280	292438	N/A
37	4/30/2021	92.85	8926	5432	4138	405020	292394	N/A
38	5/1/2021	94.01	8947	5460	4256	404920	287467	N/A
39	5/1/2021	91.35	8744	5722	4000	405100	290772	N/A
40	5/1/2021	93.42	8996	5448	4100	408060	290887	N/A
41	5/2/2021	93.48	8987	5432	4025	412660	286481	N/A
42	5/2/2021	92.73	8822	4910	4112	404280	286897	N/A
43	5/2/2021	91.98	8797	5247	4250	399800	288991	N/A
44	5/2/2021	93.65	9000	5570	4170	408900	291731	N/A
45	5/2/2021	93.55	8714	5572	3975	411960	289884	N/A
46	5/3/2021	93.35	8714	5738	4521	415880	291833	N/A
47	5/3/2021	93.3	8914	6254	4144	414180	308395	N/A
48	5/3/2021	94.67	8948	5931	4161	409360	307287	N/A
49	5/4/2021	94.86	8900	5315	3809	402460	303821	N/A
50	5/4/2021	94.83	8698.66	5185.66	3774.85	404100	300490	N/A
51	5/4/2021	93.75	8577	5432	4007	408660	305068	N/A
52	5/4/2021	95.66	8779	6146	3569	412140	305138	N/A
53	5/5/2021	94.08	8656	6046	3745	412400	302950	N/A
54	5/5/2021	93.39	8297	5783	4056	412780	305395	N/A
55	5/5/2021	94.51	8639	5590	3634	408860	304355	N/A
56	5/6/2021	95.59	8489	5464	3789	408220	302780	N/A
57	5/6/2021	93.55	8466	5846	3805	405660	304356	N/A
58	5/6/2021	95.52	8596	5580	3736	405700	304883	N/A
59	5/7/2021	96.04	8419	5973	3448	409340	301729	N/A
60	5/7/2021	94.66	8214	5533	3590	405320	302521	N/A
61	5/7/2021	94.35	8462	5582	3192	407400	302857	N/A
62	5/8/2021	96.37	7891	6199	3972	406300	303895	N/A
63	5/8/2021	94.47	7566	5432	3509	403640	306783	N/A
64	5/8/2021	96.03	8332	5910	3561	409380	302133	N/A
65	5/8/2021	95.82	8347	5855	3540	410720	302380	N/A
66	5/9/2021	72.17	6719	5631	4265	407440	506877	N/A
67	5/9/2021	95.79	7905	5717	4151	407980	301767	N/A
68	5/10/2021	96.59	7957	5570	3578	408180	302274	N/A
69	5/10/2021	93.04	7425	5458	3765	407480	301407	N/A
70	5/10/2021	93.71	7592	5657	3790	403640	301688	N/A
71	5/10/2021	93.48	7514.22	5018.17	3867.83	406820	302598	N/A
72	5/10/2021	93.73	7607	5669	3729	404720	300149	N/A
73	5/11/2021	95.93	7542	5842	3636	407140	300206	N/A
74	5/11/2021	95.83	7340	5678	3698	404880	298656	N/A
75	5/11/2021	93.91	7157	5608	3450	407860	301548	N/A
76	5/11/2021	92.18	7194	6165	3603	411420	304334	N/A
77	5/11/2021	94.61	7200	4855	3204	406580	301873	N/A
78	5/11/2021	96.21	7157	6006	3698	410180	310103	N/A
	AVG=	91	8,847	5,531	3,882	31,428,040	23,205,274	TOTAL

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Shaley Siltstone	74	194	74	194
Shaley Sandstone	194	284	194	284
Shaley Siltstone	284	364	284	364
Limestone, Tr Shale	364	494	364	494
Sandstone	494	584	494	584
Limestone, Tr Shale	584	794	584	794
Shaley Sandstone	794	884	794	884
Shale, Tr Sandstone	884	1,134	884	1,134
Sandy Shale, Limestone	1,134	1,244	1,134	1,244
Sandy Shale	1,244	1,484	1,244	1,484
Sandstone, Tr Shale	1,484	1,664	1,484	1,664
Silty Shale, tr SS	1,664	1,784	1,664	1,784
Shale, Tr Sst	1,784	1,922	1,784	1,926
Big Lime	1,948	2,595	1,926	2,599
Fifty Foot Sandstone	2,595	2,681	2,573	2,685
Gordon	2,681	3,031	2,659	3,037
Fifth Sandstone	3,031	3,130	3,011	3,138
Bayard	3,130	3,951	3,112	4,026
Speechley	3,951	4,218	4,000	4,319
Balltown	4,218	4,667	4,293	4,818
Bradford	4,667	5,077	4,792	5,277
Benson	5,077	5,290	5,251	5,513
Alexander	5,290	6,351	5,487	6,722
Sycamore	6,220	6,325	6,550	6,696
Middlesex	6,325	6,413	6,696	6,849
Burkett	6,413	6,430	6,849	6,888
Tully	6,430	6,480	6,888	7,044
Marcellus	6,480	NA	7,044	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:	3/30/2021
Job End Date:	5/11/2021
State:	West Virginia
County:	Tyler
API Number:	47-095-02723-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	YOUGH UNIT 1H
Latitude:	39.54122000
Longitude:	-80.87054000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,539
Total Base Water Volume (gal):	24,326,629
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
Produced Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.70998	Density = 8.50
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.08777	

HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
Excelerate LX-15	Halliburton	Friction Reducer					
				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
MC B-8614A	MultiChem	Biocide					
				Listed Below			
OPTIFLO-II DELAYED RELEASE 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	13.17910	
			Complex Amine Compound	Proprietary	60.00000	0.02840	
			Hydrochloric acid	7647-01-0	30.00000	0.01536	

			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01420	
			Guar gum	9000-30-0	100.00000	0.00389	
			Glutaraldehyde	111-30-8	30.00000	0.00245	
			Surfactant	Proprietary	5.00000	0.00237	
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00237	
			Ethoxylated alcohols	Proprietary	5.00000	0.00049	
			Organic chloride compound	Proprietary	1.00000	0.00047	
			Alkoxylated polyhydric alcohol	Proprietary	1.00000	0.00047	
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00041	
			Methanol	67-56-1	100.00000	0.00023	
			Ammonium persulfate	7727-54-0	100.00000	0.00010	
			Ethanol	64-17-5	1.00000	0.00008	
			Modified thiourea polymer	Proprietary	30.00000	0.00007	
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00007	
			Oxylated phenolic resin	Proprietary	30.00000	0.00003	
			Hexadecene	629-73-2	5.00000	0.00001	
			Propargyl alcohol	107-19-7	5.00000	0.00001	
			Acrylamide	79-06-1	0.01000	0.00000	
			Organic salt #2	Proprietary	0.01000	0.00000	
			Organic salt #1	Proprietary	0.01000	0.00000	
			Nitrated acetate salt	Proprietary	0.01000	0.00000	
			Sodium hydroxide	1310-73-2	0.01000	0.00000	
			Sodium glycolate	2836-32-0	0.01000	0.00000	
			Formaldehyde	50-00-0	0.01000	0.00000	
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000	

* 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)

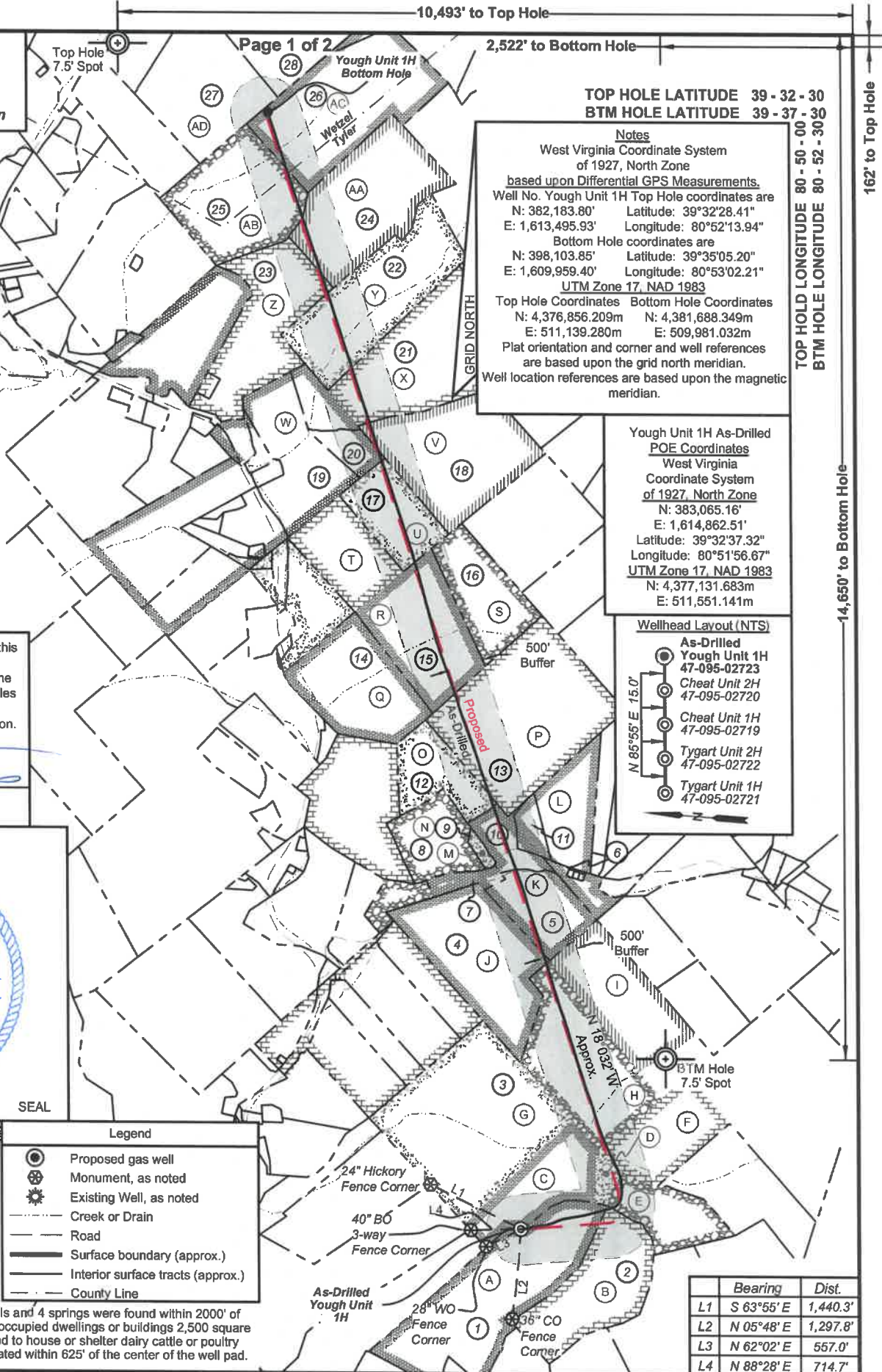
**Antero Resources
Well No. Yough 1H
As-Drilled**
Antero Resources Corporation



Top Hole Coordinates, As-drilled data, and information was provided by Antero Resources Corporation. Allegheny Surveys Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

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 prescribed by the Department of Environmental Protection.

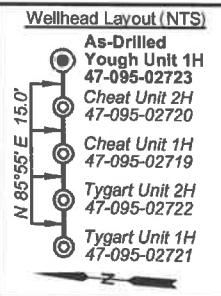
Bradley D. Miller
Bradley D. Miller, P.S. 2167



TOP HOLE LATITUDE 39 - 32 - 30
BTM HOLE LATITUDE 39 - 37 - 30

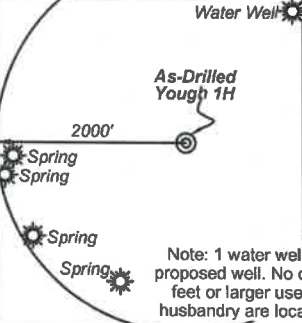
Notes
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. Yough Unit 1H Top Hole coordinates are
N: 382,183.80' Latitude: 39°32'28.41"
E: 1,613,495.93' Longitude: 80°52'13.94"
Bottom Hole coordinates are
N: 398,103.85' Latitude: 39°35'05.20"
E: 1,609,959.40' Longitude: 80°53'02.21"
UTM Zone 17, NAD 1983
Top Hole Coordinates Bottom Hole Coordinates
N: 4,376,856.209m N: 4,381,688.349m
E: 511,139.280m E: 509,981.032m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.

Yough Unit 1H As-Drilled POE Coordinates
West Virginia Coordinate System of 1927, North Zone
N: 383,065.16'
E: 1,614,862.51'
Latitude: 39°32'37.32"
Longitude: 80°51'56.67"
UTM Zone 17, NAD 1983
N: 4,377,131.683m
E: 511,551.141m



Legend

- Proposed gas well
- Monument, as noted
- Existing Well, as noted
- Creek or Drain
- Road
- Surface boundary (approx.)
- Interior surface tracts (approx.)
- County Line



	Bearing	Dist.
L1	S 63°55' E	1,440.3'
L2	N 05°48' E	1,297.8'
L3	N 62°02' E	557.0'
L4	N 88°28' E	714.7'

FILE NO: 83-54-E-19
DRAWING NO: Yough Unit 1H As-Drilled
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: August 30 20 21
OPERATOR'S WELL NO. Yough 1H
API WELL NO
47 - 095 - 02723
STATE COUNTY PERMIT

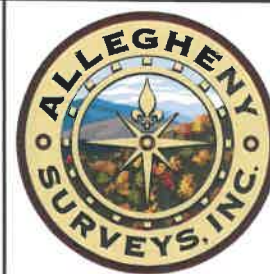
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

LOCATION: ELEVATION: As-Built 1,126' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Top Hole:Porter Falls
DISTRICT: Ellsworth/Magnolia COUNTY: BTM Hole: Paden City

SURFACE OWNER: Patricia Ann Heintzman Robert D. Wetzel; Gary A. & Penny K. Midcap; Harold Skinner; Joel Potts, III; Lomax R. Kunkel (2); James D. VanCamp, et al (2); Linda Allen; John W. Bucher; Judy P. Meyers; BRC Appalachian Minerals I, LLC (3); Antero Minerals, LLC; Gary A. Midcap, et ux; ACREAGE: 12/31/2021
ROYALTY OWNER: Patricia Ann Heintzman; Nina & Phillip Whitefield; Nina A. Whitefield; Larry R. & Kim M. Henthom; LEASE NO: ACREAGE: 62.18; 59.75; 63.3125

PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled 6,494' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 22,899' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313



ID	TM/Par	Owner	Bk/Pg	Acres
1	10-2	Patricia Ann Heintzman	W13/384	73.26
2	10-3	Kevin S. & Melinda S. Goff	597/808	53.75
3	6-36	Dennis & Clista Heintzman	297/640	417.60
4	6-24	Harold Skinner	204/595	62.18
5	6-25.2	Kevin Lee Fletcher	328/723	32.00
6	6-17.3	Tracy Postlewait	354/74	3.00
7	6-25.1	Kevin Lee Fletcher	328/723	5.76
8	6-16.4	Michael L. Roberts	407/45	27.74
9	6-16.5	James M. & Sherry Starkey	344/785	24.44
10	6-25	William L. McClain	253/323	11.87
11	6-17	William McClain	297/87	10.24
12	6-16.5	James M. & Sherry Starkey	344/785	24.44
13	6-6	Gary A. & Penny K. Midcap	301/265	100.00
14	6-4	James D. Vancamp, et al	W38/144	46.76
15	6-5	Gary A. & Penny K. Midcap	301/265	75.55
16	3-32	Gary A. & Penny K. Midcap	301/265	38.09
17	3-42	Rosalie B. Henry	362/339	27.00
18	3-24	Gary A. & Penny K. Midcap	301/265	66.50
19	3-40	Rosalie Henry	170/006	46.21
20	3-41	Gary A. & Penny K. Midcap	296/518	7.00
21	3-18	Gary Midcap	322/108	80.33
22	3-13	Lomax R. Kunkel	297/692	63.50
23	3-12	Lomax R. Kunkel	297/692	57.51
24	3-8	Steven D. & Brenda M. Higgins	313/623	67.00
25	16-65	Kenneth W. & Norma A. Headley	355/347	58.60
26	16-67	Robert D. Wetzel	404/372	82.06
27	16-59	Kenneth W. & Norma A. Headley	355/347	47.75
28	16-61	Kenneth W. & Norma A. Headley	355/347	41.75

Leases	
A	Patricia Ann Heintzman
B	Nina & Phillip Whitefield
C	Norma Smith
D	BRC Appalachian Minerals I, LLC
E	Nina A. Whitefield
F	Larry R and Kim M. Henthorn
G	Dennis R. Heintzman, et ux
H	BRC Appalachian Minerals I, LLC
I	BRC Appalachian Minerals I, LLC
J	Harold Skinner
K	Antero Minerals, LLC
L	Larry F. Hughes
M	Judy P. Meyers
N	Brenda L. Martin
O	Judy P. Meyers
P	Gary A. Midcap, et ux
Q	James D. VanCamp, et al
R	James D. VanCamp, et al
S	James D. VanCamp, et al
T	Penny G. Bond
U	Linda Allen
V	John W. Bucher
W	James D. VanCamp, et al
X	Gary A. & Penny K. Midcap
Y	Lowmax R. Kunkel
Z	Lowmax R. Kunkel
AA	Joel Potts III
AB	BRC Appalachian Minerals, I LLC
AC	Robert D. Wetzel
AD	OPEN

FILE NO: 83-54-E-19
 DRAWING NO: Yough Unit 1H As-Drilled
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY:
 Submeter
 PROVEN SOURCE OF ELEVATION:
 WVDOT, Harrisville, WV



DATE: August 30 20 21
 OPERATOR'S WELL NO. Yough 1H
 API WELL NO
 47 - 095 - 02723
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 1,126' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Top Hole:Porter Falls
 DISTRICT: Ellsworth/Magnolia COUNTY: Top Hole Tyler 82.06;
 SURFACE OWNER: Patricia Ann Heintzman Robert D. Wetzel; Top Hole Tyler 76.25; 53.75; 30; 58.6;
 James D. VanCamp, et al (2); Linda Allen; John W. Bucher; Judy P. Meyers; COUNTY: BTM Hole Wetzel 67.90; 29.875; 48; 67;
 BRC Appalachian Minerals I, LLC (3); Antero Minerals, LLC; Gary A. Midcap, et ux; ACREAGE: 123.12021 62.18; 24.44; 48.5; 27;
 ROYALTY OWNER: Patricia Ann Heintzman; Nina & Phillip Whitefield; Nina A. Whitefield; Larry R. & Kim M. Henthorn; LEASE NO: ACREAGE: 66.5; 151.08; 162.125;
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled 6,494' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 22,899' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
 Denver, CO 80202 Charleston, WV 25313