

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

API 47-017-06903 County Doddridge Tyler District West Union
Quad Smithburg 7.5' Pad Name Peggy June Field/Pool Name ----
Farm name Samuel and Peggy Smith Well Number Whitehill 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 4350465m Easting 521882m
Landing Point of Curve Northing 4350794.79m Easting 522398.73m
Bottom Hole Northing 4353621m Easting 521525m

Elevation (ft) 1275' 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 Office of Oil and Gas

Mud Type(s) and Additive(s) Air - Foam & 4% KCL
Mud - Polymer
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WV Department of Environmental Protection

Date permit issued 1/28/2020 Date drilling commenced 2/12/2020 Date drilling ceased 1/25/2021
Date completion activities began 4/4/2021 Date completion activities ceased 5/2/2021
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 320' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1603' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 1601' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by: SDW
9/8/21
10/01/2021

API 47- 017 - 06903 Farm name Samuel and Peggy Smith Well number Whitehill 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"	80'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	421'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2585'	New	36#, K-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	17917'	New	20#, P-110	N/A	Y
Tubing		2-3/8"	7607'		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	285 sx	15.6	1.20	60	0'	8 Hrs.
Surface	Class A	368 sx	15.6	1.20	79	0'	8 Hrs.
Coal							
Intermediate 1	Class A	863 sx	15.6	1.19	186	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	792 sx (Lead) 2820 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.4 (Lead), 1.16 (Tail)	598	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17967' MD, 7082' TVD (BHL), 7081' (Deepest Point Drilled) Loggers TD (ft) 17967' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

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Kick off depth (ft) 6622'

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Check all wireline logs run caliper density deviated/directional induction neutron resistivity gamma ray temperature sonic
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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

10/01/2021

API 47-017-06903 Farm Name Samuel and Peggy Smith Well Number Whitehill Unit 2H

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	4/4/2021	17847	17802	36	Marcellus
2	4/5/2021	17760.91786	17546.425	36	Marcellus
3	4/5/2021	17508.34286	17293.85	36	Marcellus
4	4/5/2021	17255.76786	17041.275	36	Marcellus
5	4/6/2021	17003.19286	16788.7	36	Marcellus
6	4/6/2021	16750.61786	16536.125	36	Marcellus
7	4/6/2021	16498.04286	16283.55	36	Marcellus
8	4/6/2021	16245.46786	16030.975	36	Marcellus
9	4/6/2021	15992.89286	15778.4	36	Marcellus
10	4/7/2021	15740.31786	15525.825	36	Marcellus
11	4/7/2021	15487.74286	15273.25	36	Marcellus
12	4/7/2021	15235.16786	15020.675	36	Marcellus
13	4/7/2021	14982.59286	14768.1	36	Marcellus
14	4/7/2021	14730.01786	14515.525	36	Marcellus
15	4/8/2021	14477.44286	14262.95	36	Marcellus
16	4/8/2021	14224.86786	14010.375	36	Marcellus
17	4/8/2021	13972.29286	13757.8	36	Marcellus
18	4/8/2021	13719.71786	13505.225	36	Marcellus
19	4/8/2021	13467.14286	13252.65	36	Marcellus
20	4/9/2021	13214.56786	13000.075	36	Marcellus
21	4/9/2021	12961.99286	12747.5	36	Marcellus
22	4/9/2021	12709.41786	12494.925	36	Marcellus
23	4/9/2021	12456.84286	12242.35	36	Marcellus
24	4/10/2021	12204.26786	11989.775	36	Marcellus
25	4/10/2021	11951.69286	11737.2	36	Marcellus
26	4/10/2021	11699.11786	11484.625	36	Marcellus
27	4/10/2021	11446.54286	11232.05	36	Marcellus
28	4/10/2021	11193.96786	10979.475	36	Marcellus
29	4/10/2021	10941.39286	10726.9	36	Marcellus
30	4/11/2021	10688.81786	10474.325	36	Marcellus
31	4/11/2021	10436.24286	10221.75	36	Marcellus
32	4/11/2021	10183.66786	9969.175	36	Marcellus
33	4/11/2021	9931.092857	9716.6	36	Marcellus
34	4/12/2021	9678.517857	9464.025	36	Marcellus
35	4/12/2021	9425.942857	9211.45	36	Marcellus
36	4/12/2021	9173.367857	8958.875	36	Marcellus
37	4/12/2021	8920.792857	8706.3	36	Marcellus
38	4/12/2021	8668.217857	8453.725	36	Marcellus
39	4/12/2021	8415.642857	8201.15	36	Marcellus
40	4/13/2021	8163.067857	7948.575	36	Marcellus
41	4/13/2021	7910.492857	7696	36	Marcellus

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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	4/4/2021	73.96	8606	8490	4122	180132	212096	N/A
2	4/5/2021	80.33	8790	5893	4141	507004	380191	N/A
3	4/5/2021	84.56	8678	5757	4141	506573	383660	N/A
4	4/5/2021	81.34	8639	5437	3696	505723	376087	N/A
5	4/6/2021	81.53	8596	5533	3768	508692	379969	N/A
6	4/6/2021	82.88	8509	5479	4595	506383	373708	N/A
7	4/6/2021	92.13	8675	5744	4264	506080	364637	N/A
8	4/6/2021	87.6	8648	5811	4241	506560	409591	N/A
9	4/6/2021	77.39	8153	7979	3779	506771	353769	N/A
10	4/7/2021	79.9	8666	7130	3723	506697	356565	N/A
11	4/7/2021	88.39	8718	4907	4378	506566	360483	N/A
12	4/7/2021	92.87	8781	5804	4543	506420	357292	N/A
13	4/7/2021	91.53	8726	4903	4256	506652	365788	N/A
14	4/7/2021	91.73	8717	7670	3927	506494	362102	N/A
15	4/8/2021	91.54	8685	6691	4209	506860	352617	N/A
16	4/8/2021	97.18	8737	5865	4376	506720	357237	N/A
17	4/8/2021	98.21	8772	4616	4249	506780	361922	N/A
18	4/8/2021	92.26	8599	5584	4482	506432	360794	N/A
19	4/8/2021	95.2	8693.75	7946.3	4334.31	506491	362503	N/A
20	4/9/2021	93.17	8651	8502	4107	506970	365885	N/A
21	4/9/2021	97.72	8745	5690	4555	506720	357996	N/A
22	4/9/2021	97.58	8700	5962	4306	506640	358612	N/A
23	4/9/2021	96.59	8715	6638	5153	506546	357294	N/A
24	4/10/2021	98.91	8726	7687	4839	506622	358588	N/A
25	4/10/2021	97.36	8783	7043	4277	506832	358511	N/A
26	4/10/2021	98.52	8710	5037	4420	510100	358506	N/A
27	4/10/2021	96.33	8621	5832	4397	508700	358436	N/A
28	4/10/2021	97.69	8722	6104	3858	505000	359973	N/A
29	4/10/2021	99	8606	6570	4270	506700	380134	N/A
30	4/11/2021	96.32	8291	6748	4155	507165	362160	N/A
31	4/11/2021	98.73	8504	6067	4828	506440	357626	N/A
32	4/11/2021	97.87	8389	5760	4370	506340	350104	N/A
33	4/11/2021	98.12	8161	6097	4823	506783	355160	N/A
34	4/12/2021	98.43	7923	6625	4423	506872	364119	N/A
35	4/12/2021	98.85	7980	5678	4613.89	506822	371258	N/A
36	4/12/2021	98.81	7777	5646	4473	506540	371145	N/A
37	4/12/2021	98.35	7912	5508	4514	506600	369861	N/A
38	4/12/2021	99.54	8037	5589	5138	500920	369081	N/A
39	4/12/2021	98.8	7730	6387	5004	506653	364716	N/A
40	4/13/2021	98.99	7408	6819	4370	506783	360876	N/A
41	4/13/2021	98.84	7317	5817	3995	506680	361407	N/A
	AVG=	93	8,458	6,221	4,344	20,445,458	14,802,459	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	120	210	120	210
Shale	210	390	210	390
Silty Shale	390	480	390	480
Shale	480	810	480	810
Silty Shale	810	840	810	840
Shaley Sandstone	840	960	840	960
Shaley Sandstone	960	1,050	960	1,050
Shale	1,050	1,110	1,050	1,110
Sandy Shale	1,110	1,230	1,110	1,230
Shaley Sandstone	1,230	1,290	1,230	1,290
Sandstone, Tr Shale, Tr Silt	1,290	1,710	1,290	1,710
Shaley Sandstone, Occ Coal	1,710	1,890	1,710	1,890
Sandy Shale, Tr Coal, Tr Limestone	1,890	2,186	1,890	2,188
Big Lime	2,216	2,813	2,218	2,816
Fifty Foot Sandstone	2,813	2,898	2,816	2,902
Gordon	2,898	3,189	2,902	3,197
Fifth Sandstone	3,189	3,377	3,197	3,390
Bayard	3,377	4,012	3,390	4,104
Speechley	4,012	4,315	4,104	4,457
Balltown	4,315	4,701	4,457	4,906
Bradford	4,701	5,180	4,906	5,465
Benson	5,180	5,492	5,465	5,823
Alexander	5,492	6,728	5,823	7,256
Sycamore	6,486	6,698	6,965	7,226
Middlesex	6,698	6,840	7,226	7,434
Burkett	6,840	6,870	7,434	7,488
Tully	6,870	6,935	7,488	7,644
Marcellus	6,935	NA	7,644	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

Job Start Date:	4/4/2021
Job End Date:	4/13/2021
State:	West Virginia
County:	Doddridge
API Number:	47-017-06903-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	WHITEHILL UNIT 2H
Latitude:	39.30321100
Longitude:	-80.74638900
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,079
Total Base Water Volume (gal):	15,359,925
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 Mixture	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.34507	Density = 8.50
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.05594	

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Excelerate LX-15	Halliburton	Friction Reducer					
				Listed Below			
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
MC B-8614A	MultiChem	Biocide					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
FLUID Enviro-Syn HCR-7000-WL	Fluid Energy Group	Acid Replacement					
				Listed Below			
HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			

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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	13.52156
		Complex Amine Compound	Proprietary	60.00000	0.02954
		Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01477
		Proprietary	Proprietary	20.00000	0.01061
		Hydrochloric acid	7647-01-0	30.00000	0.00544
		Proprietary	Proprietary	10.00000	0.00531
		Guar gum	9000-30-0	100.00000	0.00455
		Glutaraldehyde	111-30-8	30.00000	0.00248
		Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00246
		Surfactant	Proprietary	5.00000	0.00246
		Ethoxylated alcohols	Proprietary	5.00000	0.00049
		Organic chloride compound	Proprietary	1.00000	0.00049
		Alkoxylated polyhydric alcohol	Proprietary	1.00000	0.00049
		Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00041
		Ammonium persulfate	7727-54-0	100.00000	0.00010
		Ethanol	64-17-5	1.00000	0.00008
		Methanol	67-56-1	100.00000	0.00003
		Oxylated phenolic resin	Proprietary	30.00000	0.00003
		Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00001
		Modified thiourea polymer	Proprietary	30.00000	0.00001
		Organic salt #1	Proprietary	0.01000	0.00000
		Acrylamide	79-06-1	0.01000	0.00000
		Sodium glycolate	2836-32-0	0.01000	0.00000
		Sodium hydroxide	1310-73-2	0.01000	0.00000

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			Organic salt #2	Proprietary	0.01000	0.00000	
			Formaldehyde	50-00-0	0.01000	0.00000	
			Nitrated acetate salt	Proprietary	0.01000	0.00000	
			Propargyl alcohol	107-19-7	5.00000	0.00000	
			Hexadecene	629-73-2	5.00000	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)

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LATITUDE 39°20'00"

10,769'

121' TO BOTTOM HOLE
LATITUDE 39°20'00"

609' TO BOTTOM HOLE

10,971'

LONGITUDE 80°45'00"

LONGITUDE 80°42'30"

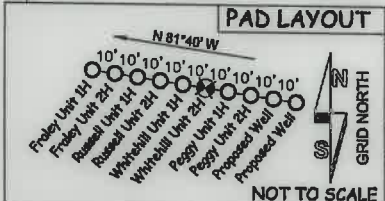
COUNTY NAME

PERMIT

Antero Resources Corporation Well No. Whitehill Unit 2H

- 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 ANTERO RESOURCES CORPORATION.
 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.

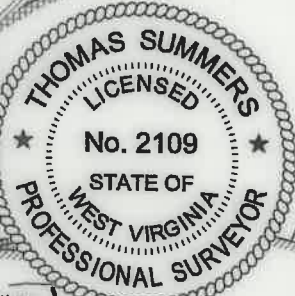
API WELL # 47 - 017 - 06903
STATE COUNTY PERMIT



NOTES:
2H BOTTOM HOLE
WELL 2H TOP HOLE INFORMATION:
N: 294,993ft E: 1,647,302ft
LAT: 39°18'11.56" LON: 80°44'47.00"
BOTTOM HOLE INFORMATION:
N: 305,370ft E: 1,646,303ft
LAT: 39°19'53.98" LON: 80°45'01.54"
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: 4,350,465m E: 521,882m
BOTTOM HOLE INFORMATION:
N: 4,353,621m E: 521,525m

WELL 2H POINT OF ENTRY INFORMATION:
N: 295,512ft E: 1,649,240ft
LAT: 39°18'16.96" LON: 80°44'22.44"
N: 4,350,633m E: 522,469m



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

JOB # 19-036WA
DRAWING # WHITEHILL2HAD
SCALE 1" = 1000'
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

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

THOMAS SUMMERS P.S. 2109
DATE 08/03/21
OPERATOR'S WELL# WHITEHILL UNIT #2H

WELL TYPE: OIL ___ GAS LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION STORAGE ___ DEEP ___ SHALLOW
LOCATION: ELEVATION 1,275' - AS BUILT WATERSHED HEADWATERS MIDDLE ISLAND CREEK
QUADRANGLE SH-SMITHBURG 7.5' BH-WEST UNION 7.5' DISTRICT WEST UNION COUNTY DODDRIDGE
SURFACE OWNER SAMUEL AND PEGGY SMITH ACREAGE 28.956 ACRES +/-
OIL & GAS ROYALTY OWNER ELAINE DEBOLT; R.L. BARNES ET UX; JAMES S. KISSEL

CHARLES N. WELCH ET AL; EQT PRODUCTION COMPANY; DIXIE J. CRAIG; PAMELA R. SCOTT; LEASE ACREAGE 84.8 ACRES +/- 222 ACRES +/- 17.01 ACRES +/-
MICHAEL T. O'BRIEN ET UX; ED BROOME INC.; LENA E. CHRISTMAN; ELIZABETH WETZEL ROMINE 27 ACRES +/- 20 ACRES +/- 39 ACRES +/- 80 ACRES +/-
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 7,082' TVD 17,967' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM
FORM WW-6 DENVER, CO 80202 ADDRESS 5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

10/01/2021