

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

API 47 - 017 - 06877 County Doddridge District West Union  
Quad Smithburg 7.5' Pad Name Deets Pad Field/Pool Name -----  
Farm name Mary E. Deets and/or Paul A. Smith Well Number Schrader 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 4351711m Easting 523690m  
Landing Point of Curve Northing 4352082.37m Easting 524121.27m  
Bottom Hole Northing 4354731m Easting 523288m

Elevation (ft) 1376' 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

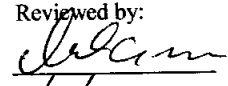
Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine

Mud Type(s) and Additive(s)  
Air - Foam & 4% KCL  
Mud - Polymer

Date permit issued 12/21/2018 Date drilling commenced 7/9/2019 Date drilling ceased 8/1/2019  
Date completion activities began 12/1/2019 Date completion activities ceased 1/1/2020  
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 196', 221' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1381', 1843', 1966' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 583', 891' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by:  
  
6/5/2020

API 47- 017 - 06877 Farm name Mary E. Deets and/or Paul A. Smith Well number Schrader 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"	106'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	392'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2627'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	17466'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7536'		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 <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	204 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	480 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	933 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	730 sx (Lead) 2605 sx (Tail)	14.5 (Lead), 15.2 (Tail)	1.40 (Lead), 1.26 (Tail)		~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17486' MD, 7182' TVD (BHL), 7184' (Deepest Point Drilled) Loggers TD (ft) 17486' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6650'

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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PRODUCING FORMATION(S)	DEPTHS		
<u>Marcellus</u>	<u>7087' (TOP)</u>	<u>TVD</u>	<u>7580' (TOP)</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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 13359 mcfpd Oil 68 bpd NGL --- bpd Water 1281 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 <sub>2</sub> S, ETC)
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**\*PLEASE SEE ATTACHED EXHIBIT 3**


Please insert additional pages as applicable.

Drilling Contractor Patterson UTI Drilling Company LLC  
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company KLX Energy Services  
Address 3040 Post Oak Boulevard City Houston State TX Zip 77056

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

Stimulating Company Baker Hughes  
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223  
Signature \_\_\_\_\_ Title Permitting Agent Date \_\_\_\_\_

API 47-017-06877 Farm Nam Mary E. Deets and/or Paul A. Smith Well Number Schrader Unit 1H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	12/5/2019	17357.3	17312.3	60	Marcellus
2	12/6/2019	17274.495	17108.47	60	Marcellus
3	12/6/2019	17072.865	16906.84	60	Marcellus
4	12/7/2019	16871.235	16705.21	60	Marcellus
5	12/7/2019	16669.605	16503.58	60	Marcellus
6	12/8/2019	16467.975	16301.95	60	Marcellus
7	12/8/2019	16266.345	16100.32	60	Marcellus
8	12/9/2019	16064.715	15898.69	60	Marcellus
9	12/9/2019	15863.085	15697.06	60	Marcellus
10	12/9/2019	15661.455	15495.43	60	Marcellus
11	12/10/2019	15459.825	15293.8	60	Marcellus
12	12/10/2019	15258.195	15092.17	60	Marcellus
13	12/11/2019	15056.565	14890.54	60	Marcellus
14	12/11/2019	14854.935	14688.91	60	Marcellus
15	12/12/2019	14653.305	14487.28	60	Marcellus
16	12/14/2019	14451.675	14285.65	60	Marcellus
17	12/14/2019	14250.045	14084.02	60	Marcellus
18	12/14/2019	14048.415	13882.39	60	Marcellus
19	12/14/2019	13846.785	13680.76	60	Marcellus
20	12/14/2019	13645.155	13479.13	60	Marcellus
21	12/15/2019	13443.525	13277.5	60	Marcellus
22	12/15/2019	13241.895	13075.87	60	Marcellus
23	12/15/2019	13040.265	12874.24	60	Marcellus
24	12/15/2019	12838.635	12672.61	60	Marcellus
25	12/16/2019	12637.005	12470.98	60	Marcellus
26	12/16/2019	12435.375	12269.35	60	Marcellus
27	12/16/2019	12233.745	12067.72	60	Marcellus
28	12/16/2019	12032.115	11866.09	60	Marcellus
29	12/17/2019	11830.485	11664.46	60	Marcellus
30	12/17/2019	11628.855	11462.83	60	Marcellus
31	12/17/2019	11427.225	11261.2	60	Marcellus
32	12/17/2019	11225.595	11059.57	60	Marcellus
33	12/17/2019	11023.965	10857.94	60	Marcellus
34	12/18/2019	10822.335	10656.31	60	Marcellus
35	12/18/2019	10620.705	10454.68	60	Marcellus
36	12/18/2019	10419.075	10253.05	60	Marcellus
37	12/18/2019	10217.445	10051.42	60	Marcellus
38	12/19/2019	10015.815	9849.79	60	Marcellus
39	12/19/2019	9814.185	9648.16	60	Marcellus
40	12/19/2019	9612.555	9446.53	60	Marcellus
41	12/19/2019	9410.925	9244.9	60	Marcellus
42	12/19/2019	9209.295	9043.27	60	Marcellus
43	12/20/2019	9007.665	8841.64	60	Marcellus
44	12/20/2019	8806.035	8640.01	60	Marcellus
45	12/20/2019	8604.405	8438.38	60	Marcellus
46	12/20/2019	8402.775	8236.75	60	Marcellus
47	12/20/2019	8201.145	8035.12	60	Marcellus
48	12/20/2019	7999.515	7833.49	60	Marcellus
49	12/21/2019	7797.885	7631.86	60	Marcellus

## 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	12/5/2019	60.6	8338	9385	3767	169125	5000.643	N/A
2	12/6/2019	83.55	8578	5543	3909	407245	7328.143	N/A
3	12/6/2019	83.4	8610	5738	3747	408485	7319.262	N/A
4	12/7/2019	85.02	8397	5597	3737	409345	7373.238	N/A
5	12/7/2019	83.5	8611	5740	4180	400120	9208.738	N/A
6	12/8/2019	84.6	8628	6021	3768	408660	7526.952	N/A
7	12/8/2019	85.4	8692	5526	3640	408660	7351	N/A
8	12/9/2019	84.4	8760	5423	3729	409560	7317.238	N/A
9	12/9/2019	80.6	8619	5708	3627	413300	7391.952	N/A
10	12/9/2019	82.2	8779	5827	3749	403820	7276.357	N/A
11	12/10/2019	81.29	8615	5597	3817	405300	7207.381	N/A
12	12/10/2019	83.22	8764	5633	3712	407260	7493.024	N/A
13	12/11/2019	84.39	8564	5604	3962	409020	7915.143	N/A
14	12/11/2019	84.27	8717	5340	3565	404980	7386.452	N/A
15	12/12/2019	84.96	8588	5432	3458	410860	7488.405	N/A
16	12/14/2019	84.72	8734	5207	3673	408620	7265.833	N/A
17	12/14/2019	85.3	8494	5629	3685	409920	7210.714	N/A
18	12/14/2019	84.24	8621	5169	3690	410020	7202.143	N/A
19	12/14/2019	85.35	8567	5794	3940	411140	7167.429	N/A
20	12/14/2019	85.84	8495	5428	3911	410260	7402.643	N/A
21	12/15/2019	85.83	8673	5328	3767	409500	7207.952	N/A
22	12/15/2019	85.58	8606	5604	3939	408560	7175.024	N/A
23	12/15/2019	85.86	8485	5640	3706	413800	7241.929	N/A
24	12/15/2019	85.27	8528	5376	3853	412380	7146.143	N/A
25	12/16/2019	85.5	8351	4969	3528	408460	7165.738	N/A
26	12/16/2019	83.6	8188	5712	3796	409720	7073.952	N/A
27	12/16/2019	84.08	8087	5504	3769	405680	6986.667	N/A
28	12/16/2019	84.91	8223	5361	3615	407420	7103.381	N/A
29	12/17/2019	85.84	8309	5421	3614	410360	7072.024	N/A
30	12/17/2019	85.41	8227	5393	3638	410620	7066.524	N/A
31	12/17/2019	85.6	8028	5262	3663	409700	7130.238	N/A
32	12/17/2019	85.07	8139	5575	3556	402980	7002.786	N/A
33	12/17/2019	85	7985	5432	3668	405540	7081.476	N/A
34	12/18/2019	84.9	8117	5598	3735	406260	7101.929	N/A
35	12/18/2019	85.42	8224	5443	3868	403400	6959.762	N/A
36	12/18/2019	85.41	8307	5305	3755	404040	7097.048	N/A
37	12/18/2019	85.5	7966	5133	3989	407120	6995.214	N/A
38	12/19/2019	85.5	7739	5469	3480	407140	7082.214	N/A
39	12/19/2019	85.36	7829	5288	3643	410600	6978.571	N/A
40	12/19/2019	84.58	7864	5792	4014	407360	6957.167	N/A
41	12/19/2019	85.16	7743	5553	3913	415620	7172.643	N/A
42	12/19/2019	85.7	7719	5262	4013	415400	7034.048	N/A
43	12/20/2019	85.3	7608	5277	3778	413720	7011.643	N/A
44	12/20/2019	85.45	7984	5361	3549	411420	6999.714	N/A
45	12/20/2019	85.66	7758	5275	3944	410120	6955.238	N/A
46	12/20/2019	85.8	7606	5419	3695	411520	7018.095	N/A
47	12/20/2019	85.49	7379	7497	3626	410540	7007.786	N/A
48	12/20/2019	85.41	7000	5239	3674	409460	6925.952	N/A
49	12/21/2019	83.63	7029	5644	3102	411480	7108.095	N/A
<b>AVG</b>		<b>84.2</b>	<b>8,343</b>	<b>5,577</b>	<b>3,753</b>	<b>17,742,500</b>	<b>316,676</b>	<b>TOTAL</b>

## EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Shaly Sandstone	75	135	75	135
Sandy Shale	135	195	135	195
Shaly Sandstone	195	275	195	275
Sandstone	275	315	275	315
Shaly Sandstone	315	455	315	455
Sandstone	455	535	455	535
Carbonaceous shale	535	655	535	655
Sandstone	655	875	655	875
Shaly sandstone tr coal	875	1,055	875	1,055
Shaly Siltstone	1,055	1,255	1,055	1,255
Sandstone	1,255	1,455	1,255	1,455
Sandy siltstone	1,455	1,535	1,455	1,535
Sandstone	1,535	2,162	1,535	N/A
Big Lime	2,187	2,863	2,218	2,965
Fifty Foot Sandstone	2,863	2,949	2,940	3,057
Gordon	2,949	3,234	3,032	3,359
Fifth Sandstone	3,234	3,558	3,334	3,694
Bayard	3,558	4,011	3,669	4,163
Speechley	4,011	4,436	4,138	4,605
Balltown	4,436	4,834	4,580	5,019
Bradford	4,834	5,359	4,994	5,565
Benson	5,359	5,537	5,540	5,751
Alexander	5,537	6,867	5,726	7,161
Sycamore	6,620	6,837	6,888	7,131
Middlesex	6,837	6,985	7,136	7,346
Burkett	6,985	7,014	7,351	7,400
Tully	7,014	7,087	7,405	7,580
Marcellus	7,087	NA	7,580	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.

# ANTERO RESOURCES CORPORATION

Location: Doddridge Co., WV  
 Facility: Doddridge  
 Well: Schrader Unit 1H  
 Wellbore: Schrader Unit 1H PWB

Slot: Slot #09  
 Wellbore: Schrader Unit 1H PWB

Grid System: NAD27 / UTM Zone 17 North, US feet  
 North Reference: Grid north  
 Scale: True distance  
 Depths are in feet  
 Created by: delatou on 2019-08-12  
 Database: WA\_MPL\_EasternUS\_Defn

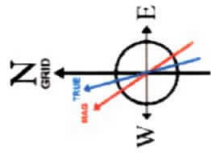
Plot reference wellpath is Schrader Unit 1H PWB Rev-B.0  
 True vertical depths are referenced to H&P 317 (RKB)  
 Measured depths are referenced to H&P 317 (RKB)  
 H&P 317 (RKB) to Mean Sea Level: 1401.5 feet  
 Mean Sea Level to Ground level (At Slot: Slot #09): -1376 feet  
 Coordinates are in feet referenced to Slot

Location Information			
Facility Name	Grid East (US ft)	Latitude	Longitude
Deeds Pad	1718082.640	39°18'52.186"N	80°43'31.460"W
Slot	Local N (ft)	Grid East (US ft)	Longitude
Slot #09	-39.02	1718091.360	80°43'31.350"W
H&P 317 (RKB) to Ground level (At Slot: Slot #09)	8.72	14276522.990	25.5ft
Mean Sea Level to Ground level (At Slot: Slot #09)	-1376ft		
H&P 317 (RKB) to Mean Sea Level	1401.5ft		

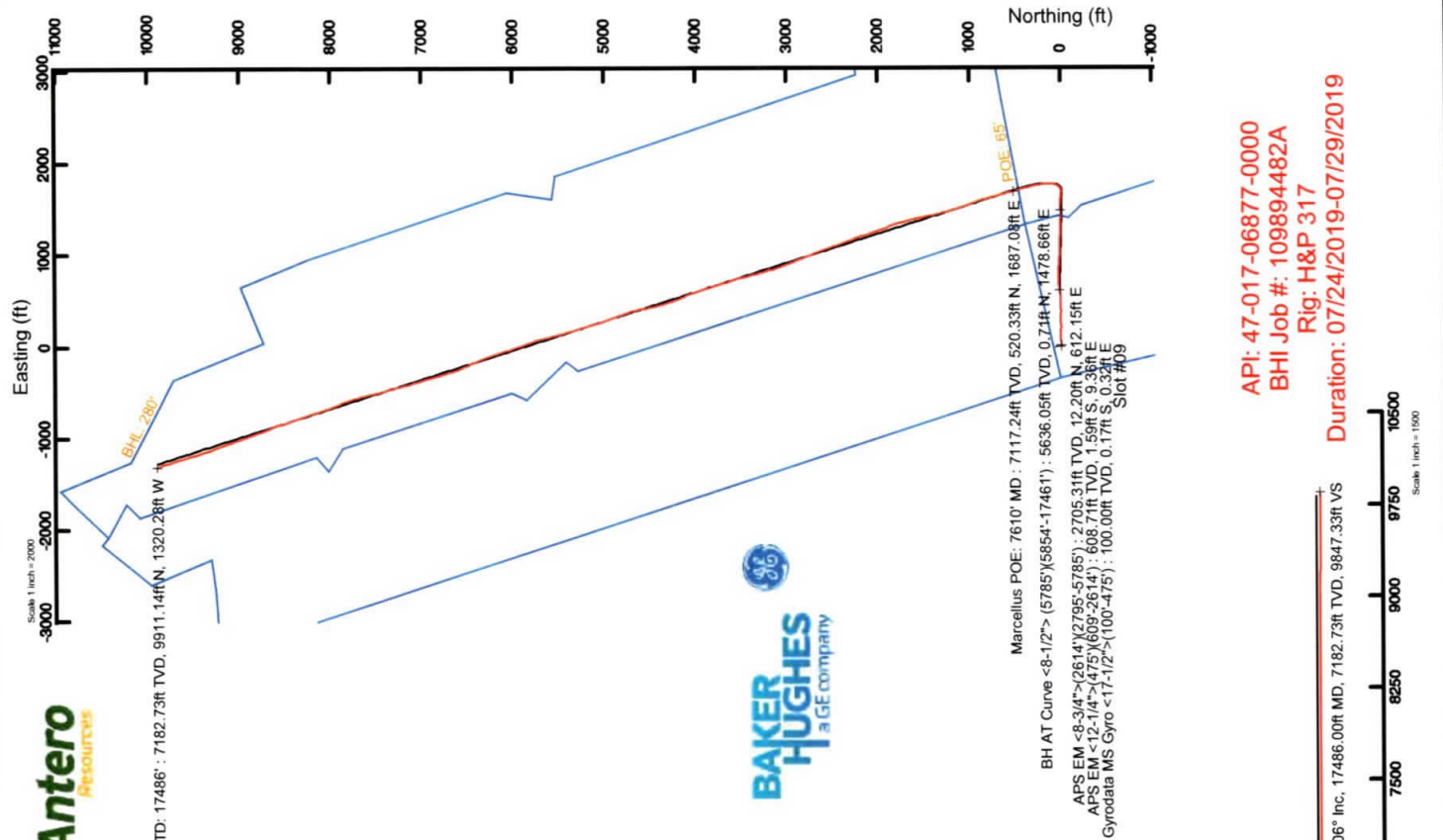
Well Profile Data			
Design Comment	MD (ft)	Inc (")	Az (°)
Tile On	2614.00	21.600	87.210
Proj. To Bottom	2680.00	21.600	87.210
DH# Out Csg	2780.00	21.600	87.210
Hold Tangent	3050.60	16.358	91.385
Curve KOP	6626.15	72.014	342.428
POE	7600.16	90.000	342.428
Landing PL	7657.10	90.000	342.428
BHL	17448.00	90.000	342.428

Design Comment	MD (ft)	Inc (")	Az (°)	Local N (ft)	Local E (ft)	DLS (7/100ft)	VS (ft)
Tile On	2614.00	21.600	87.210	2537.49	6.27	544.62	-158.42
Proj. To Bottom	2680.00	21.600	87.210	2598.86	7.46	605.89	0.00
DH# Out Csg	2780.00	21.600	87.210	2691.84	9.25	605.65	0.00
Hold Tangent	3050.60	16.358	91.385	2947.65	10.75	693.56	2.00
Curve KOP	6626.15	72.014	342.428	6378.47	-13.60	1700.26	0.00
POE	7600.16	90.000	342.428	507.60	1697.02	8.00	-28.36
Landing PL	7657.10	90.000	342.428	7153.00	748.55	7.00	224.39
BHL	17448.00	90.000	342.428	9891.95	-1274.74	0.00	9815.29

Marcellus POE: 7610° MD : 73.01° Inc, 7610.00ft MD, 7117.24ft TVD, -13.22ft VS  
 BH AT Curve <8-1/2> (5785)(5854-17461) : 16.57° Inc, 5854.00ft MD, 5636.05ft TVD, -445.69ft VS  
 User specified (HDGM) Dip: 86.42° Field: 51990 nT  
 Magnetic North is 7.77 degrees West of True North (at 7/9/2019)  
 Grid North is 0.17 degrees East of True North  
 To correct azimuth from True to Grid subtract 0.17 degrees  
 To correct azimuth from Magnetic to Grid subtract 7.94 degrees



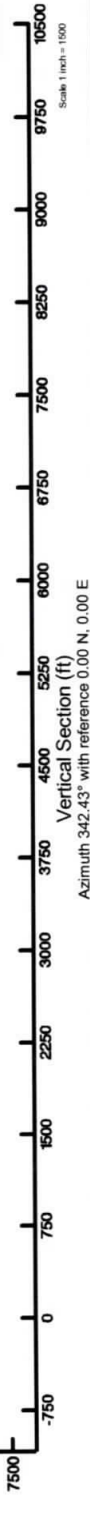
Well Data		
Slot	Wellbore	Wellpath
Slot #09	Schrader Unit 1H	Schrader Unit 1H AWP
Slot #09	Schrader Unit 1H	Schrader Unit 1H PWB
		Schrader Unit 1H PWB Rev-B.0



API: 47-017-06877-0000  
 BHI Job #: 109894482A  
 Rig: H&P 317

Duration: 07/24/2019-07/29/2019

Projected MD at TD: 17486° : 90.06° Inc, 17486.00ft MD, 7182.73ft TVD, 9847.33ft VS





# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/5/2019
Job End Date:	12/21/2019
State:	West Virginia
County:	Doddridge
API Number:	47-017-06877-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Schrader 1H
Latitude:	39.31438900
Longitude:	-80.72537500
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,182
Total Base Water Volume (gal):	15,308,073
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	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	55.83967	Density = 8.34
Produced Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	30.64435	Density = 8.50

Ingredients	Listed Above	Listed Above	Listed Above						
				Water	7732-18-5	100.00000	0.16512		
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant			Listed Below				
LD-2950	MultiChem	Friction Reducer			Listed Below				
MC B-8614	Halliburton	Biocide			Listed Below				
FDP-S1296-17	Halliburton	Acid Corrosion Inhibitor			Listed Below				
HYDROCHLORI C ACID, 22 BAUME	Halliburton	Solvent			Listed Below				
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker			Listed Below				
WG-36 GELLING AGENT	Halliburton	Gelling Agent			Listed Below				

FORSA SCW4037W SCALE INHIBITOR	Baker Hughes	Scale Inhibitor		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	13.32025			
		Hydrochloric acid	7647-01-0	30.00000	0.04053			
		Complex Amine Compound	Proprietary	60.00000	0.02180			
		Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01090			
		Alkanolamine phosphate	Trade Secret	30.00000	0.00428			
		Methanol	67-56-1	100.00000	0.00318			
		Glutaraldehyde	111-30-8	30.00000	0.00247			
		Guar gum	9000-30-0	100.00000	0.00150			
		Ethylene glycol	107-21-1	5.00000	0.00071			
		Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00041			
		Poly(oxy-1,2-ethanediyl), alpha-tridecyl-omega-hydroxy-, branched	69011-36-5	1.00000	0.00036			
		Ethoxylated alcohols	Proprietary	1.00000	0.00036			
		Adipic acid	124-04-9	1.00000	0.00036			
		Ethanol	64-17-5	1.00000	0.00008			
		Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00007			
		Modified thiourea polymer	Proprietary	30.00000	0.00007			
		Ammonium persulfate	7727-54-0	100.00000	0.00005			
		Oxylated phenolic resin	Proprietary	30.00000	0.00002			
		Propargyl alcohol	107-19-7	5.00000	0.00001			



State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Discharge Monitoring Report  
Oil and Gas General Permit

Company Name: Antero Resources Corporation  
API No: 47-017-06877 County: Doddridge  
District: West Union Well No: Schrader Unit 1H  
Farm Name: Mary E. Deets and/or Paul A. Smith  
Discharge Date/s From:(MMDDYY) 01/17/20 To: (MMDDYY) 02/16/20  
Discharge Times. From: 0.00 To: 24:00  
Total Volume to be Disposed from this facility (gallons): 1,332,243

Disposal Option(s) Utilized (write volumes in gallons):

- (1) Land Application: 0 (Include a topographical map of the Area.)  
(2) UIC: 0 Permit No. \_\_\_\_\_  
(3) Offsite Disposal: 0 Site Location: \_\_\_\_\_  
(4) Reuse: 1,332,243 Alternate Permit Number: \_\_\_\_\_  
(5) Centralized Facility: 0 Permit No. \_\_\_\_\_  
(6) Other method: 0 (Include an explanation)

Follow Instructions below to determine your treatment category:

Optional Pretreatment test: N/A Cl- mg/l N/A DO mg/l

1. Do you have permission to use expedited treatment from the Director or his representative?  
(Y/N) N/A If yes, who? \_\_\_\_\_ and place a four (4) on line 7.  
If not go to line 2
2. Was Frac Fluid or flowback put into the pit? (Y/N) N/A If yes, go to line 5. If not, go to line 3.
3. Do you have a chloride value pretreatment (see above)? (Y/N) N/A If yes, go to line 4  
If not, go to line 5.
4. Is the Chloride level less than 5000 mg/l? (Y/N) N/A If yes, then enter a one (1) on line 7.
5. Do you have a pretreatment value for DO? (See above) (Y/N) N/A If yes, go to line 6  
If not, enter a three (3) in line 7.
6. Is the DO level greater than 2.5 mg/l?(Y/N) N/A If yes, enter a two (2) on line 7. If not, enter a three (3) on line 7.
7. N/A is the category of your pit. Use the Appropriate section.
8. Comments on Pit condition: N/A No pit on-site.

Name of Principal Exec. Officer: Gretchen Kohler

Title of Officer: Sr. Environmental & Regulatory Manager

Date Completed: 05/05/2020

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Gretchen Kohler

Digitally signed by Gretchen Kohler  
Date: 2020.05.05 16:47:42 -06'00'

Signature of a Principal Exec. Officer or Authorized agent.

Category 1  
Sampling Results

API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	5	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl	5,000	_____	5,000	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**			Monitor	_____	mg/l
Oil and Grease			Monitor	_____	mg/l
Total Al***			Monitor	_____	mg/l
TSS			Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume			Monitor	_____	Gal
Flow			Monitor	_____	Gal/min
Disposal Area			Monitor	_____	Acres

\*\*\* Al is only reported if the pH is above 9.0

Category 2  
Sampling Results

API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	10	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**			Monitor	_____	mg/l
Oil and Grease			Monitor	_____	mg/l
Total Al***			Monitor	_____	mg/l
TSS			Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume			Monitor	_____	Gal
Flow			Monitor	_____	Gal/min
Disposal Area			Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_

Date: \_\_\_\_\_

\*\* Include a description of your aeration technique.

Aeration Code: \_\_\_\_\_

\*\*\* Al is only reported if the pH is above 9.0

Category 3  
Sampling Results

API No : \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	20	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_

Date: \_\_\_\_\_

\*\* Include a description of your aeration technique.

Aeration Code: \_\_\_\_\_

\*\*\* Al is only reported if the pH is above 9.0.

Category 4  
Sampling Results

API No: \_\_\_\_\_

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	1	_____	N/A	N/A	Days
Fe	Monitor	_____	Monitor	_____	mg/l
D.O.	Monitor	_____	Monitor	_____	mg/l
Settleable Sol.	Monitor	_____	Monitor	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Activated Carbon (0.175)		_____	N/A	N/A	lb/Bl
Date Site Reclaimed	N/A	N/A			10 days from dis.
Disposal Area		_____	Monitor	_____	Acres

\* Can be 25,000 with inspector's approval,

(Inspector's signature): \_\_\_\_\_

Date: \_\_\_\_\_



LATITUDE 39°20'00"

4,822'

6,110' TO BOTTOM HOLE

LATITUDE 39°22'30"

LONGITUDE 80°42'30"

12,162' TO BOTTOM HOLE

6,901'

LONGITUDE 80°42'30"

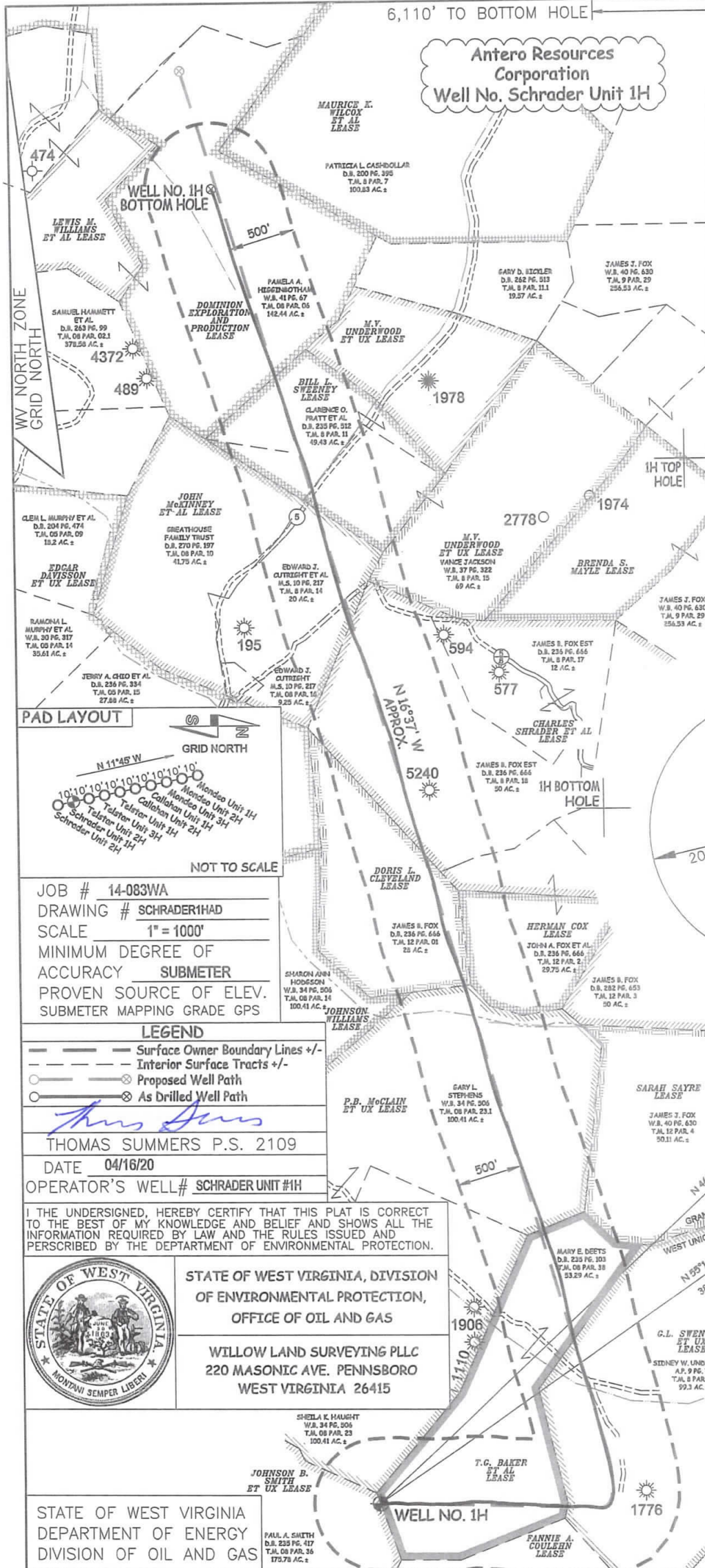
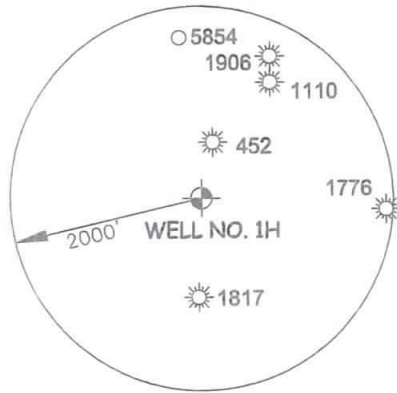
### Antero Resources Corporation Well No. Schrader Unit 1H

**AS DRILLED DATA:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 298,981ft E: 1,653,304ft  
 LAT: 39°18'51.80" LON: 80°43'31.35"  
**BOTTOM HOLE INFORMATION:**  
 N: 308,913ft E: 1,652,149ft  
 LAT: 39°20'29.80" LON: 80°43'47.77"  
**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.

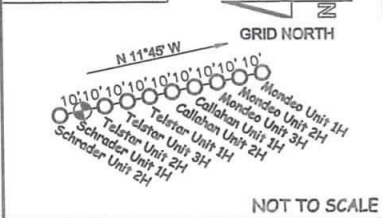
**(NAD) 83 (UTM) ZONE 17 COORDS:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 4,351,711m E: 523,690m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,354,731m E: 523,288m

- 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.

**NOTE:**  
 NO WATER WELLS WERE LOCATED WITHIN 2000' OF PROPOSED WELL.



#### PAD LAYOUT



NOT TO SCALE

JOB # 14-083WA  
 DRAWING # SCHRADER1HAD  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

THOMAS SUMMERS P.S. 2109  
 DATE 04/16/20  
 OPERATOR'S WELL# SCHRADER UNIT #1H

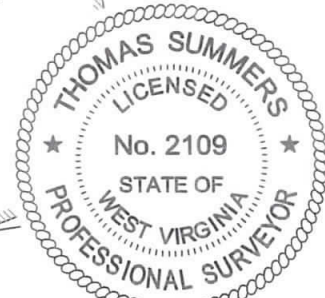
I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS



WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL (IF GAS) PRODUCTION X STORAGE DEEP SHALLOW X  
 LOCATION: ELEVATION 1,376' -AS BUILT WATERSHED HEADWATERS MIDDLE ISLAND CREEK QUADRANGLE SMITHBURG 7.5' DISTRICT WEST UNION COUNTY DODDRIDGE  
 SURFACE OWNER MARY E. DEETS AND/OR PAUL A. SMITH ACREAGE 53.29 ACRES +/- AND/OR 175.78 ACRES +/-  
 OIL & GAS ROYALTY OWNER JOHN B. SMITH ET UX; T.G. BAKER ET AL; G.L. SWENTZEL ET UX; P.B. McCLAIN ET UX; LEASE ACREAGE 180 AC.±; 54 AC.±; 1033 AC.±; 150 AC.±;  
 DORIS L. CLEVELAND; CHARLES SHRADER ET AL; JOHN MCKINNEY ET AL; BILL L. SWEENEY; DOMINION EXPLORATION AND PRODUCTION 27.29 AC.±; 230 AC.±; 73 AC.±; 44.45 AC.±; 224 AC.±  
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION  
 PERFORM NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG  
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,182' TVD 17,486' MD  
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM  
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
 FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

API WELL # 47 - 017 - 06877  
 STATE COUNTY PERMIT