



Antero Resources  
1615 Wynkoop Street  
Denver, CO 80202  
Office 303.357.7310  
Fax 303.357.7315

November 8, 2017

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
Attn: John Kearney  
601 57<sup>th</sup> Street  
Charleston, WV 25304

Mr. Kearney:

Please find enclosed the Well Operator's Report of Well Work, Form WR-35 (including As-Drilled Survey Plat, Directional Survey and FracFocus report), Discharge Monitoring Report Form WR-34 and corresponding logs for the following well:

- Tabor Unit 2H (API#47-095-02165) – Coastal 2 Pad

If you have any questions please feel free to contact me at (303) 357-6759.

Sincerely,

A handwritten signature in blue ink, appearing to read "S. Klaas", is written over the typed name and title.

Samantha Klaas  
Permitting Agent  
Antero Resources Corporation

RECEIVED  
Office of Oil and Gas  
NOV 09 2017  
WV Department of  
Environmental Protection

Enclosures

02/16/2018

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

API 47 - 095 - 02165 County Tyler District McElroy  
Quad Centerpoint 7.5' Pad Name Coastal 2 Pad Field/Pool Name -----  
Farm name Coastal Lumber Company Well Number Tabor 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 4364394m Easting 523595m  
Landing Point of Curve Northing 4364284.937m Easting 523797.012m  
Bottom Hole Northing 4361172m Easting 524805m

Elevation (ft) 1188' 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

RECEIVED  
Office of Oil and Gas  
NOV 09 2017  
WV Department of  
Environmental Protection

Date permit issued 05/19/2014 Date drilling commenced 06/22/2015 Date drilling ceased 10/25/2015  
Date completion activities began 09/18/2016 Date completion activities ceased 01/22/2017  
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 60', 180', 220' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1723', 1893' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 1301', 1561', 1701' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

**APPROVED**

NAME: Sen n 12  
DATE: 11-14-17

Reviewed by: DMH  
**02/16/2018**

API 47-095 - 02165 Farm name Coastal Lumber Company Well number Tabor Unit 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	40'	New	94#, K-55	N/A	Y
Surface	17-1/2"	13-3/8"	399'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2532'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	18337'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7270'		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	100 sx	15.6	1.18	118	0'	8 Hrs.
Surface	Class A	466 sx	15.6	1.19	555	0'	8 Hrs.
Coal							
Intermediate 1	Class A	946 sx	15.6	1.18	1116	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1094 sx (Lead) 1733 sx (Tail)	14.5 (Lead), 15.2 (Tail)	1.3 (Lead), 1.85 (Tail)	4628	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 18337' MD, 7174' TVD (BHL) & 7178' TVD (Deepest Point Drilled) Loggers TD (ft) 18287' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

RECEIVED  
Office of Oil and Gas  
NOV 09 2017

Kick off depth (ft) 8442'

WV Department of Environmental Protection

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 - 02165 Farm name Coastal Lumber Company Well number Tabor Unit 2H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
<b>*PLEASE SEE ATTACHED EXHIBIT 1</b>					

Please insert additional pages as applicable.

RECEIVED  
Office of Oil and Gas  
NOV 09 2017  
WV Department of Environmental Protection

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 (bbbls)	Amount of Nitrogen/other (units)
<b>*PLEASE SEE ATTACHED EXHIBIT 2</b>								

Please insert additional pages as applicable.

API 47- 095 - 02165 Farm name Coastal Lumber Company Well number Tabor Unit 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>7066' (TOP)</u>	<u>TVD</u>	<u>7272' (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 3550 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 13273 mcfpd Oil 87 bpd NGL --- bpd Water 561 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

<u>LITHOLOGY/ FORMATION</u>	<u>TOP DEPTH IN FT</u>	<u>BOTTOM DEPTH IN FT</u>	<u>TOP DEPTH IN FT</u>	<u>BOTTOM DEPTH IN FT</u>	<u>DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H<sub>2</sub>S, ETC)</u>
	<u>NAME</u> <u>TVD</u>	<u>TVD</u>	<u>MD</u>	<u>MD</u>	
<b>*PLEASE SEE ATTACHED EXHIBIT 3</b>					


RECEIVED  
Office of Oil and Gas  
NOV 09 2017  
WV Department of  
Environmental Protection

Please insert additional pages as applicable.

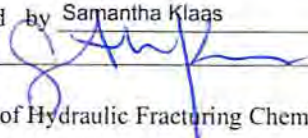
Drilling Contractor Precision Drilling Company, LP  
Address 2640 Reach Road City Williamsport State PA Zip 17701

Logging Company Allied Horizontal Well Services  
Address 381 Colonial Manor Rd. City North Huntington State PA Zip 15642

Cementing Company Nabors Completion & Production Services, Co.  
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company CalFrac  
Address 533 Industrial Park Drive City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Samantha Klaas Telephone 303-357-6759  
Signature  Title Permitting Agent Date 11/08/2017

Submission of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

02/16/2018

## EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/18/2016	17983	18125	60	Marcellus
2	11/11/2016	17786	17952	60	Marcellus
3	11/12/2016	17588	17755	60	Marcellus
4	11/13/2016	17391	17558	60	Marcellus
5	11/13/2016	17194	17360	60	Marcellus
6	11/14/2016	16997	17163	60	Marcellus
7	11/15/2016	16799	16966	60	Marcellus
8	11/15/2016	16602	16769	60	Marcellus
9	11/16/2016	16405	16571	60	Marcellus
10	11/17/2016	16208	16374	60	Marcellus
11	11/17/2016	16010	16177	60	Marcellus
12	11/18/2016	15813	15980	60	Marcellus
13	11/20/2016	15616	15782	60	Marcellus
14	11/20/2016	15419	15585	60	Marcellus
15	11/21/2016	15221	15388	60	Marcellus
16	11/21/2016	15024	15191	60	Marcellus
17	11/22/2016	14827	14993	60	Marcellus
18	11/23/2016	14630	14796	60	Marcellus
19	11/25/2016	14432	14599	60	Marcellus
20	11/25/2016	14235	14402	60	Marcellus
21	11/26/2016	14038	14204	60	Marcellus
22	11/26/2016	13841	14007	60	Marcellus
23	11/27/2016	13643	13810	60	Marcellus
24	11/28/2016	13446	13612	60	Marcellus
25	11/28/2016	13249	13415	60	Marcellus
26	11/29/2016	13052	13218	60	Marcellus
27	11/29/2016	12854	13021	60	Marcellus
28	11/30/2016	12657	12823	60	Marcellus
29	12/1/2016	12460	12626	60	Marcellus
30	12/1/2016	12263	12429	60	Marcellus
31	12/2/2016	12065	12232	60	Marcellus
32	12/3/2016	11868	12034	60	Marcellus
33	12/3/2016	11671	11837	60	Marcellus
34	12/4/2016	11474	11640	60	Marcellus
35	12/6/2016	11276	11443	60	Marcellus
36	12/7/2016	11079	11245	60	Marcellus
37	12/7/2016	10882	11048	60	Marcellus
38	12/8/2016	10685	10851	60	Marcellus
39	12/9/2016	10487	10654	60	Marcellus
40	12/9/2016	10290	10456	60	Marcellus
41	12/10/2016	10093	10259	60	Marcellus
42	12/10/2016	9896	10062	60	Marcellus
43	12/11/2016	9698	9865	60	Marcellus
44	12/11/2016	9501	9667	60	Marcellus
45	12/12/2016	9304	9470	60	Marcellus
46	12/13/2016	9106	9273	60	Marcellus
47	12/13/2016	8909	9076	60	Marcellus
48	12/14/2016	8712	8878	60	Marcellus
49	12/14/2016	8515	8681	60	Marcellus
50	12/15/2016	8317	8484	60	Marcellus
51	12/15/2016	8120	8287	60	Marcellus
52	12/16/2016	7923	8089	60	Marcellus
53	12/16/2016	7726	7892	60	Marcellus
54	12/17/2016	7528	7695	60	Marcellus
55	12/18/2016	7331	7498	60	Marcellus

RECEIVED  
Office of Oil and Gas

NOV 09 2017

WV Department of  
Environmental Protection

02/16/2018

## 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	11/11/2016	70.7	7896	0	4822	401100	9671	N/A
2	11/11/2016	66.9	7924	5680	4889	393700	9187	N/A
3	11/12/2016	69.3	7775	5878	4215	397250	9085	N/A
4	11/13/2016	71.4	7915	5779	4778	397800	9100	N/A
5	11/13/2016	71.1	8015	5803	4408	397500	9054	N/A
6	11/14/2016	70.0	8294	5726	5263	397000	12308	N/A
7	11/15/2016	67.7	8331	5799	5348	397400	9360	N/A
8	11/15/2016	71.1	8184	5510	4806	396900	9077	N/A
9	11/16/2016	72.8	8124	5733	4316	404770	9112	N/A
10	11/17/2016	69.7	7875	5656	4163	397550	9191	N/A
11	11/17/2016	68.9	7964	5688	4624	397700	9056	N/A
12	11/18/2016	71.2	8026	5627	4096	398550	9157	N/A
13	11/20/2016	74.2	7951	5594	4453	397500	9022	N/A
14	11/20/2016	74.8	8061	5822	5230	397450	9013	N/A
15	11/21/2016	73.3	8197	5572	4284	397650	8960	N/A
16	11/21/2016	72.3	8040	5638	4408	397950	8964	N/A
17	11/22/2016	69.0	8088	5710	5448	398750	10116	N/A
18	11/23/2016	72.6	8221	5547	5303	398050	8964	N/A
19	11/25/2016	79.2	7681	5459	5448	397550	8884	N/A
20	11/25/2016	75.4	8138	5702	4983	397700	8837	N/A
21	11/26/2016	76.5	7636	5659	5448	397750	8738	N/A
22	11/26/2016	73.0	7722	5775	4944	398650	8870	N/A
23	11/27/2016	73.4	7526	5654	5349	399150	11380	N/A
24	11/28/2016	75.5	7631	5490	5443	398850	8820	N/A
25	11/28/2016	77.9	7728	5471	4143	397800	9912	N/A
26	11/29/2016	77.2	7419	5321	5121	398250	8968	N/A
27	11/29/2016	76.7	7698	5448	4414	397600	10684	N/A
28	11/30/2016	77.2	7309	5560	4974	398200	8807	N/A
29	12/1/2016	76.8	7579	5624	5130	397700	10143	N/A
30	12/1/2016	74.2	7464	5546	5213	397900	8741	N/A
31	12/2/2016	74.3	7534	5797	4924	396950	8770	N/A
32	12/3/2016	77.3	7095	5395	5066	397050	8733	N/A
33	12/3/2016	74.3	7609	5440	5302	396900	9992	N/A
34	12/4/2016	74.0	7435	5546	5269	397750	10463	N/A
35	12/6/2016	77.9	7325	5554	5088	397550	8720	N/A
36	12/7/2016	69.4	7815	5677	5023	397350	9112	N/A
37	12/7/2016	71.2	7761	5607	5404	397900	10472	N/A
38	12/8/2016	80.2	7295	5516	4640	397400	8731	N/A
39	12/9/2016	78.1	7261	5561	5193	397200	8979	N/A
40	12/9/2016	79.1	7138	5446	5307	397650	8657	N/A
41	12/10/2016	80.9	7097	5567	4963	397350	8700	N/A
42	12/10/2016	80.4	7187	5473	5249	398100	8688	N/A
43	12/11/2016	80.8	7249	5546	5165	396400	8860	N/A
44	12/11/2016	80.5	7324	5972	5250	397350	8612	N/A
45	12/12/2016	80.9	7215	6090	5337	397850	8648	N/A
46	12/13/2016	80.2	7310	6150	5133	398150	8584	N/A
47	12/13/2016	78.9	7223	6241	5208	397800	8652	N/A
48	12/14/2016	79.7	7297	5878	5139	397350	8609	N/A
49	12/14/2016	80.5	7002	5608	5272	398000	9016	N/A
50	12/15/2016	80.4	7046	5621	5303	398450	8607	N/A
51	12/15/2016	80.2	7309	5690	5356	397650	8844	N/A
52	12/16/2016	81.1	7205	5298	5491	397250	8916	N/A
53	12/16/2016	80.1	7116	5807	5497	399250	8648	N/A
54	12/17/2016	78.8	6811	5843	4937	397200	8628	N/A
55	12/18/2016	80.3	7311	6047	4512	397350	8905	N/A
AVG=		75.4	7,607	5,561	4,991	408,100	504,727	TOTAL

RECEIVED  
Office of Oil and Gas

NOV 09 2017

WV Department of  
Environmental Protection

02/16/2018

## EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Fresh Water	60'	N/A	60'	N/A
Fresh Water	180'	N/A	180'	N/A
Fresh Water	220'	N/A	220'	N/A
Shale and Sandstone	est. 0	401	est. 0	401
Shale	est. 401	741	est. 401	741
Limestone	est. 741	801	est. 741	801
Shale	est.801	921	est.801	921
Limestone	est. 921	941	est. 921	941
Shale	est. 941	981	est. 941	981
Sandstone	est. 981	1001	est. 981	1001
Shale	est. 1001	1121	est. 1001	1121
Sandstone	est. 1121	1141	est. 1121	1141
Shale	est. 1141	1301	est. 1141	1301
Coal	est. 1301	1321	est. 1301	1321
Shale	est. 1321	1341	est. 1321	1341
Sandstone	est. 1341	1381	est. 1341	1381
Shale and Coal	est. 1381	1441	est. 1381	1441
Sandstone	est. 1441	1501	est. 1441	1501
Shale and Siltstone	est. 1501	1561	est. 1501	1561
Coal	est. 1561	1581	est. 1561	1581
Sandstone and Limestone	est. 1581	1621	est. 1581	1621
Shale	est. 1621	1701	est. 1621	1701
Sandstone and Coal	est. 1701	1841	est. 1701	1841
Shale	est. 1841	2021	est. 1841	2021
Sandstone	est. 2021	2193	est. 2021	2197
Big Lime	2193	2325	2197	2329
Big Injun	2325	2767	2329	2771
Gantz Sand	2767	2909	2771	2913
Fifty Foot Sandstone	2909	2987	2913	2991
Gordon	2987	3273	2991	3277
Fifth Sandstone	3273	3307	3277	3311
Bayard	3307	3716	3311	3720
Warren	3716	4079	3720	4083
Speechley	4079	4374	4083	4378
Baltown	4374	4862	4378	4866
Bradford	4862	5337	4866	5341
Benson	5337	5591	5341	5595
Alexander	5591	5795	5595	5799
Elk	5795	6292	5799	6296
Rhinestreet	6292	6673	6296	6765
Sycamore	6673	6838	6765	6944
Middlesex	6838	6975	6944	7115
Burkett	6975	7003	7115	7157
Tully	7003	7066	7157	7272
Marcellus	7066	NA	7272	NA

RECEIVED  
Office of Oil and Gas

NOV 09 2017

WV Department of  
Environmental Protection

\*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.

02/16/2018



## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/11/2016
Job End Date:	12/18/2016
State:	West Virginia
County:	Tyler
API Number:	47-095-02165-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Tabor Unit 2H
Latitude:	39.42875800
Longitude:	-80.72585300
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,178
Total Base Water Volume (gal):	21,947,946
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
Water	Supplied by Operator	Base Fluid					
			Water	7732-18-5	100.00000	89.18947	
Acetic Acid	CWS	Acid					
				Listed Below			

RECEIVED  
 Office of Oil and Gas  
 NOV 09 2017  
 WV Department of  
 Environmental Protection

DAP-925	CWS	Acid Corrosion Inhibitor					
				Listed Below			
DWP-975	CWS	Breaker					
				Listed Below			
DWP-111	CWS	Gel Slurry					
				Listed Below			
DAP-902	CWS	Scale Inhibitor					
				Listed Below			
DWP-641	CWS	Friction Reducer					
				Listed Below			
DAP-103	CWS	Iron Control					
				Listed Below			
DWP-844	CWS	Microbiocide					
				Listed Below			
Sand (Proppant)	CWS	Propping Agent					
				Listed Below			
Other Chemical (s)	Listed Above	See Trade Name (s) List					

RECEIVED  
 Office of Oil and Gas  
 NOV 09 2017  
 WV Department of  
 Environmental Protection

				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	10.60574	
			Hydrochloric acid	7647-01-0	37.00000	0.05002	
			Polymer	26100-47-0	45.00000	0.02983	
			Paraffinic hydrocarbon solvent	64742-47-8	30.00000	0.01989	
			Calcite	471-34-1	1.00000	0.01892	
			Guar gum	9000-30-0	60.00000	0.01798	
			Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.01798	
			Ammonium chloride	12125-02-9	11.00000	0.00729	
			Polyethylene glycol mixture	25322-68-3	54.50000	0.00637	
			2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00624	
			Illite	12173-60-3	1.00000	0.00441	
			Goethite	1310-14-1	0.10000	0.00434	
			Sorbitan monooleate	1338-43-8	4.00000	0.00265	
			Biotite	1302-27-8	0.10000	0.00253	
			Apatite	64476-38-6	0.10000	0.00253	
			2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	20.00000	0.00234	
			Polyethylene glycol monooleate	9004-96-0	3.00000	0.00199	
			Ilmenite	98072-94-7	0.10000	0.00163	
			1,2-Propanediol	57-55-6	10.00000	0.00156	
			Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00150	
			Sorbitol tetraoleate	61723-83-9	2.00000	0.00133	
			Amines, tallow alkyl, methoxylated	61791-26-2	1.00000	0.00066	

RECEIVED  
 Office of Oil and Gas  
 NOV 09 2017  
 WV Department of  
 Environmental Protection

			Citric acid	77-92-9	60.00000	0.00047
			Sodium bromide	7647-15-6	4.00000	0.00047
			Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00045
			Ammonium Persulfate	7727-54-0	100.00000	0.00045
			Dibromoacetonitrile	3252-43-5	3.00000	0.00035
			Alcohols, C12-14, ethoxylated	84133-50-6	0.50000	0.00033
			Vinylidene chloride-methyl acrylate copolymer	25038-72-6	30.00000	0.00010
			Acrylamide	79-06-1	0.10000	0.00007
			Methanol	67-56-1	60.00000	0.00003
			Fatty acids, tall-oil	61790-12-3	30.00000	0.00002
			Hydrated magnesium silicate	14807-96-6	1.00000	0.00002
			Alcohols, C14-15, ethoxylated	68951-67-7	30.00000	0.00002
			Modified thiourea polymer	68527-49-1	30.00000	0.00002
			Poly(tetrafluoroethylene)	9002-84-0	1.00000	0.00001
			Formaldehyde	50-00-0	0.10000	0.00001
			Alkenes, C>10 a-	64743-02-8	5.00000	0.00001
			Sodium chloride	7647-14-5	1.00000	0.00001
			Propargyl Alcohol	107-19-7	10.00000	0.00001

\* 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(f) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

RECEIVED  
Office of Oil and Gas  
NOV 09 2017  
WV Department of  
Environmental Protection

LATITUDE 39°27'30"

4,999'

1,061' TO BOTTOM HOLE  
LATITUDE 39°25'00"

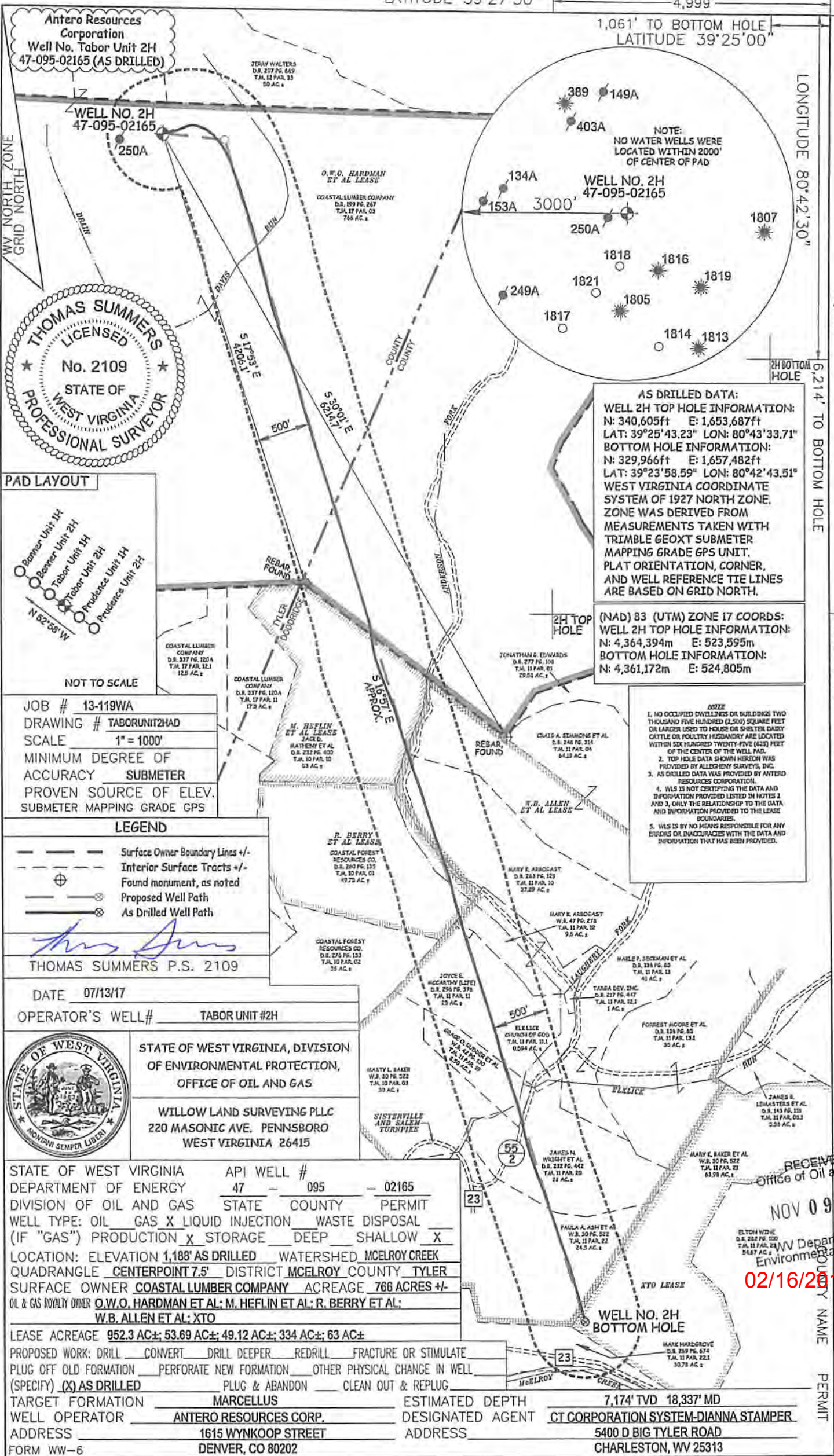
LONGITUDE 80°42'30"

10,803'

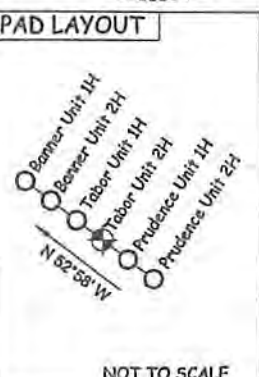
LONGITUDE 80°42'30"

NAME

PERMIT



Antero Resources Corporation  
Well No. Tabor Unit 2H  
47-095-02165 (AS DRILLED)



**AS DRILLED DATA:**  
**WELL 2H TOP HOLE INFORMATION:**  
 N: 340,605ft E: 1,653,687ft  
 LAT: 39°25'43.23" LON: 80°43'33.71"  
**BOTTOM HOLE INFORMATION:**  
 N: 329,966ft E: 1,657,482ft  
 LAT: 39°23'58.59" LON: 80°42'43.51"  
 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: 4,364,394m E: 523,595m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,361,172m E: 524,805m

- 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 ALLEGHENY SURVEYS, INC.
  3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
  4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
  5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR DISCREPANCIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

JOB # 13-119WA  
 DRAWING # TABORUNIT2HAD  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

- LEGEND**
- Surface Owner Boundary Lines +/-
  - - - Interior Surface Tracts +/-
  - ⊕ Found monument, as noted
  - ⊗ Proposed Well Path
  - ⊗ As Drilled Well Path

THOMAS SUMMERS P.S. 2109

DATE 07/13/17  
 OPERATOR'S WELL# TABOR UNIT #2H



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  
 API WELL # 47 - 095 - 02165  
 STATE COUNTY PERMIT  
 WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL  
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X  
 LOCATION: ELEVATION 1,188' AS DRILLED WATERSHED MCELROY CREEK  
 QUADRANGLE CENTERPOINT 7.5' DISTRICT MCELROY COUNTY TYLER  
 SURFACE OWNER COASTAL LUMBER COMPANY ACREAGE 766 ACRES +/-  
 OIL & GAS ROYALTY OWNER O.W.O. HARDMAN ET AL.; M. HEFLIN ET AL.; R. BERRY ET AL.; W.B. ALLEN ET AL.; XTO

LEASE ACREAGE 952.3 AC±; 53.69 AC±; 49.12 AC±; 334 AC±; 63 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 7,174' TVD 18,337' MD  
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER  
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
 FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

RECEIVED  
 Office of Oil and Gas  
 NOV 09 2017  
 WV Department of Environmental Protection  
 02/16/2018

LATITUDE 39°27'30"

4,999'

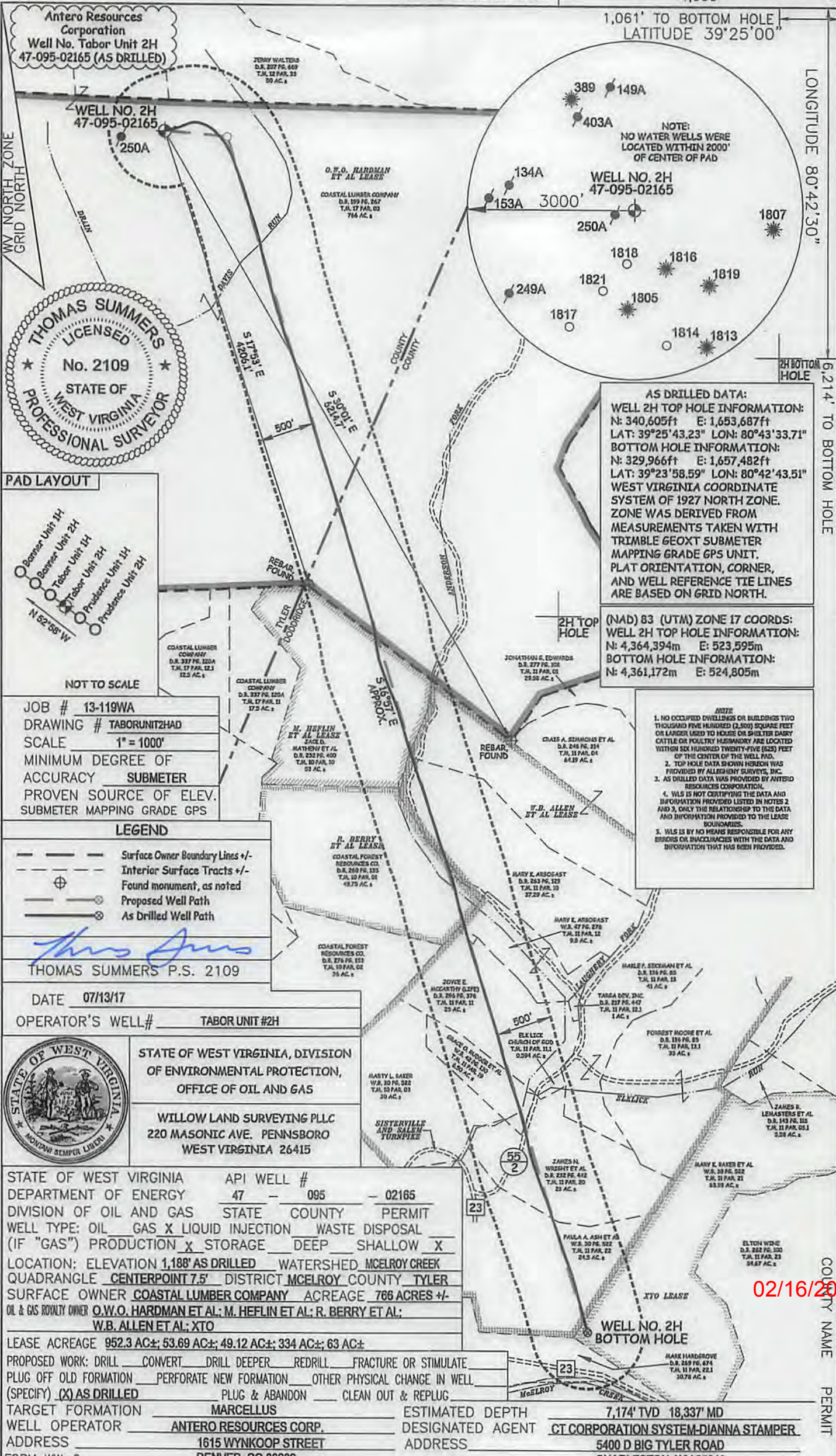
1,061' TO BOTTOM HOLE  
LATITUDE 39°25'00"

LONGITUDE 80°42'30"

10,803'

LONGITUDE 80°42'30"

02/16/2018



Antero Resources Corporation  
Well No. Tabor Unit 2H  
47-095-02165 (AS DRILLED)

WELL NO. 2H  
47-095-02165  
250A

THOMAS SUMMERS  
LICENSED  
No. 2109  
STATE OF  
WEST VIRGINIA  
PROFESSIONAL SURVEYOR

**PAD LAYOUT**

Banner Unit 1H  
Banner Unit 2H  
Tabor Unit 1H  
Tabor Unit 2H  
Prudence Unit 1H  
Prudence Unit 2H

N 52° 58' W

NOT TO SCALE

JOB # 13-119WA  
DRAWING # TABORUNIT2HAD  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

**LEGEND**

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Found monument, as noted
- Proposed Well Path
- As Drilled Well Path

*Thomas Summers*  
THOMAS SUMMERS P.S. 2109

DATE 07/13/17  
OPERATOR'S WELL# TABOR UNIT #2H

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

API WELL # 47 - 095 - 02165

STATE COUNTY PERMIT

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL

(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X

LOCATION: ELEVATION 1,188' AS DRILLED WATERSHED MCELROY CREEK  
QUADRANGLE CENTERPOINT 7.5' DISTRICT MCELROY COUNTY TYLER

SURFACE OWNER COASTAL LUMBER COMPANY ACREAGE 766 ACRES +/-  
OIL & GAS ROYALTY OWNER O.W.O. HARDMAN ET AL; M. HEFLIN ET AL; R. BERRY ET AL;  
W.B. ALLEN ET AL; XTO

LEASE ACREAGE 952.3 AC±; 53.69 AC±; 49.12 AC±; 334 AC±; 63 AC±

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE  
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL  
(SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,174' TVD 18,337' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER  
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

**AS DRILLED DATA:**  
WELL 2H TOP HOLE INFORMATION:  
N: 340,605ft E: 1,653,687ft  
LAT: 39°25'43.23" LON: 80°43'33.71"  
BOTTOM HOLE INFORMATION:  
N: 329,966ft E: 1,657,482ft  
LAT: 39°23'58.59" LON: 80°42'43.51"  
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: 4,364,394m E: 523,595m  
BOTTOM HOLE INFORMATION:  
N: 4,361,172m E: 524,805m

**NOTES**

- 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 INCONGRUENCIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



FORM WW-6

COUNTY NAME PERMIT