

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

API 47-095-02349 County Tyler District Meade  
Quad Pennsboro 7.5' Pad Name Terry Snider Pad Field/Pool Name ----  
Farm name Terry L. Snider Well Number Edwards Unit 3H  
Operator (as registered with the OOG) Antero Resources Corporation  
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4357638m Easting 503095m  
Landing Point of Curve Northing 4357834.99m Easting 502990.19m  
Bottom Hole Northing 4360045m Easting 502125m

Elevation (ft) 1146.5' 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

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Date permit issued 5/6/2016 Date drilling commenced 5/10/2016 Date drilling ceased 9/25/2016  
Date completion activities began 10/2/2017 Date completion activities ceased 4/13/2018  
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft N/A Open mine(s) (Y/N) depths No  
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths No  
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by: gjb  
9/12/2018  
**Reviewed**

API 47-095 - 02349 Farm name Terry L. Snider Well number Edwards Unit 3H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	65'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	505'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2578'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	15177'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6460'		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	60 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	596 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1000 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	784 sx (Lead) 1213 sx (Tail)	13.3 (Lead), 15.1 (Tail)	1.44 (Lead), 1.87 (Tail)	3774	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15177' MD, 6405' TVD (BHL), 6455' (Deepest Point Drilled) Loggers TD (ft) 15177' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 5983'

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

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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 - 02349 Farm name Terry L. Snider Well number Edwards Unit 3H

**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.

**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)
<b>*PLEASE SEE ATTACHED EXHIBIT 2</b>								

Please insert additional pages as applicable.

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API 47- 095 - 02349 Farm name Terry L. Snider Well number Edwards Unit 3H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6408' (TOP)</u> TVD	<u>6618' (TOP)</u> 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 6274 mcfpd Oil 64 bpd NGL --- bpd Water 350 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

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

**\*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 Kodiak Services Int'l  
 Address 2219 Sawdust Road, Unit 1604-1605 City The Woodlands State TX Zip 77380

Cementing Company BJ Services  
 Address 1036 East Main Street City Bridgeport State WV Zip 26330

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

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Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223  
 Signature  Title Permitting Agent Date 8/20/2018

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

**API 47-095-02349 Farm Name Terry L. Snider Well Number Edwards Unit 3H**

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	10/28/2017	14903	15073	60	Marcellus
2	10/29/2017	14701	14871	60	Marcellus
3	10/30/2017	14500	14670	60	Marcellus
4	10/31/2017	14298	14468	60	Marcellus
5	11/1/2017	14097	14267	60	Marcellus
6	11/2/2017	13895	14065	60	Marcellus
7	11/2/2017	13693	13863	60	Marcellus
8	11/3/2017	13492	13662	60	Marcellus
9	11/5/2017	13290	13460	60	Marcellus
10	11/5/2017	13089	13259	60	Marcellus
11	11/6/2017	12887	13057	60	Marcellus
12	11/6/2017	12685	12855	60	Marcellus
13	11/6/2017	12484	12654	60	Marcellus
14	11/7/2017	12282	12452	60	Marcellus
15	11/7/2017	12081	12251	60	Marcellus
16	11/8/2017	11879	12049	60	Marcellus
17	11/9/2017	11678	11847	60	Marcellus
18	11/9/2017	11476	11646	60	Marcellus
19	11/10/2017	11274	11444	60	Marcellus
20	11/11/2017	11073	11243	60	Marcellus
21	11/11/2017	10871	11041	60	Marcellus
22	11/12/2017	10670	10840	60	Marcellus
23	11/12/2017	10468	10638	60	Marcellus
24	11/12/2017	10266	10436	60	Marcellus
25	11/13/2017	10065	10235	60	Marcellus
26	11/14/2017	9863	10033	60	Marcellus
27	11/14/2017	9662	9832	60	Marcellus
28	11/15/2017	9460	9630	60	Marcellus
29	11/15/2017	9258	9428	60	Marcellus
30	11/16/2017	9057	9227	60	Marcellus
31	11/16/2017	8855	9025	60	Marcellus
32	11/17/2017	8654	8824	60	Marcellus
33	11/17/2017	8452	8622	60	Marcellus
34	11/18/2017	8250	8420	60	Marcellus
35	11/18/2017	8049	8219	60	Marcellus
36	11/19/2017	7847	8017	60	Marcellus
37	11/19/2017	7646	7816	60	Marcellus
38	11/20/2017	7444	7614	60	Marcellus
39	11/20/2017	7242	7412	60	Marcellus
40	11/20/2017	7041	7211	60	Marcellus
41	11/21/2017	6839	7009	60	Marcellus
42	11/21/2017	6638	6808	60	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	10/28/2017	66.7	8220		5173	13393	11828	N/A
2	10/29/2017	65.1	8114	5739	5197	19050	12318	N/A
3	10/30/2017	73.4	7814	7929	2844	18587	10340	N/A
4	10/31/2017	72.4	7446	5399	2966	15811	10439	N/A
5	11/1/2017	70.5	7373	5262	3054	15689	10420	N/A
6	11/2/2017	70.4	7669	5727	2988	16384	10480	N/A
7	11/2/2017	71.4	7276	5715	2956	15947	10285	N/A
8	11/3/2017	70.5	7573	5461	4135	17169	14526	N/A
9	11/5/2017	71	7302	5216	3062	15580	10612	N/A
10	11/5/2017	68	7305	5147	3571	16023	11287	N/A
11	11/6/2017	74.4	7215	5314	3068	15597	10522	N/A
12	11/6/2017	77.4	7279	5082	3558	15919	10450	N/A
13	11/6/2017	75.3	6920	4944	3303	15167	10313	N/A
14	11/7/2017	74.9	7016	4892	3404	15312	10592	N/A
15	11/7/2017	75.9	7097	5039	3523	15659	10267	N/A
16	11/8/2017	77.9	7234	5123	3430	15787	10553	N/A
17	11/9/2017	76.1	7045	5174	3741	15960	10533	N/A
18	11/9/2017	77.3	7167	5382	3645	16194	10321	N/A
19	11/10/2017	76.8	7105	5558	3511	16174	11218	N/A
20	11/11/2017	77.5	7152	5644	3255	16051	10956	N/A
21	11/11/2017	78.7	6494	5624	3213	15331	11340	N/A
22	11/12/2017	73.9	6657	5691	2941	15289	12193	N/A
23	11/12/2017	78	6786	5923	3208	15917	10716	N/A
24	11/12/2017	78.8	6523	5558	3210	15291	10602	N/A
25	11/13/2017	76.1	7034	5100	3183	15317	10611	N/A
26	11/14/2017	75.3	6963	6242	3156	16361	10492	N/A
27	11/14/2017	75.6	6565	6008	3453	16026	10614	N/A
28	11/15/2017	77.7	6644	5117	3309	15070	10400	N/A
29	11/15/2017	75.7	6638	5307	3205	15150	10635	N/A
30	11/16/2017	78.5	6806	5520	3417	15743	10519	N/A
31	11/16/2017	74.7	6678	6060	3242	15980	10710	N/A
32	11/17/2017	77.1	6282	5299	3150	14731	10440	N/A
33	11/17/2017	74.2	6343	5450	3100	14893	10251	N/A
34	11/18/2017	75.7	6313	5687	3175	15175	10350	N/A
35	11/18/2017	77.3	6263	5873	3431	15567	10334	N/A
36	11/19/2017	75.2	6739	5187	3615	15541	9981	N/A
37	11/19/2017	75.4	6448	5389	3340	15177	10570	N/A
38	11/20/2017	75.3	6416	5320	3377	15113	10421	N/A
39	11/20/2017	74.6	6587	5377	3407	15371	10127	N/A
40	11/20/2017	76.5	6415	5568	0	11983	10097	N/A
41	11/21/2017	75.2	6542	5708	2919	15169	11576	N/A
42	11/21/2017	75.3	6106	5886	2944	14936	10476	N/A
	AVG=	74.7	6,942	5,528	3,295	656,584	451,715	TOTAL

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## EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Sandstone	0	N/A	0	N/A
Silty Sandstone	260	N/A	260	N/A
Shale w/trace Coal	560	N/A	560	N/A
Silty Sandstone	740	N/A	740	N/A
Limey Shale	880	N/A	880	N/A
Silty Shale w/trace Coal	1,080	N/A	1,080	N/A
Silty Sandstone	1,240	N/A	1,240	N/A
Silty Sandstone	1,380	N/A	1,380	N/A
Silty Shale w/trace Coal	1,520	N/A	1,520	N/A
Silty Sandstone	1,600	N/A	1,600	N/A
Sandstone w/trace Coal	1,680	N/A	1,680	N/A
Silty Sandstone	1,740	N/A	1,740	N/A
Shale w/trace Coal	1,840	N/A	1,840	N/A
Silty Sandstone	2,002	N/A	2,002	N/A
Big Lime	2,146	N/A	2,146	N/A
Big Injun	2,561	N/A	2,561	N/A
Gantz Sand	2,834	N/A	2,835	N/A
Fifty Foot Sandstone	2,932	N/A	2,932	N/A
Gordon	3,193	N/A	3,193	N/A
Fifth Sandstone	3,253	N/A	3,253	N/A
Bayard	3,648	N/A	3,649	N/A
Warren	4,016	N/A	4,022	N/A
Speechley	4,312	N/A	4,324	N/A
Balltown	4,701	N/A	4,719	N/A
Bradford	5,054	N/A	5,077	N/A
Benson	5,279	N/A	5,306	N/A
Alexander	5,847	N/A	5,884	N/A
Rhinestreet	6,185	N/A	6,240	N/A
Sycamore	6,282	N/A	6,367	N/A
Middlesex	6,376	N/A	6,531	N/A
Burkett	6,400	N/A	6,592	N/A
Tully	6,408	N/A	6,618	N/A
Marcellus	6,343	N/A	6,685	N/A

\*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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LATITUDE 39°22'30" — 1,670'

LATITUDE 39°25'00"

4,850' TO BOTTOM HOLE

Antero Resources Corporation  
Well No. Edwards Unit 3H

AS DRILLED DATA:  
WELL 3H TOP HOLE INFORMATION:  
N: 319,561ft E: 1,586,046ft  
LAT: 39°22'05.24" LON: 80°57'51.26"  
BOTTOM HOLE INFORMATION:  
N: 327,512ft E: 1,582,994ft  
LAT: 39°23'23.33" LON: 80°58'31.78"

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 3H TOP HOLE INFORMATION:  
N: 4,357,638m E: 503,095m  
BOTTOM HOLE INFORMATION:  
N: 4,360,045m E: 502,125m



- PAD LAYOUT NOT TO SCALE**
- 10' EDWARDS UNIT 1H
  - 10' MARKLE UNIT 1H
  - 10' EDWARDS UNIT 3H
  - 10' MARKLE UNIT 2H
  - 10' EDWARDS UNIT 2H
  - 10' MARKLE UNIT 3H
  - 10' TINKER UNIT 3H
  - 10' DILLON UNIT 2H
  - 10' TINKER UNIT 2H
  - 10' DILLON UNIT 3H
  - 10' TINKER UNIT 1H
  - 10' DILLON 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

JOB # 16-009WA  
DRAWING # EDWARDS3HAD  
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 08/01/18  
OPERATOR'S WELL# EDWARDS UNIT #3H

REBAR FOUND  
REBAR FOUND

- NOTE**
- NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
  - TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
  - AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
  - WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
  - WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  47 - 095 - 02349  
(IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW   
LOCATION: ELEVATION 1,146.5' AS-BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK STATE COUNTY PERMIT  
QUADRANGLE PENNSBORO 7.5' - SHL MIDDLEBOURNE 7.5' - BHL DISTRICT MEADE COUNTY TYLER  
SURFACE OWNER RITCHIE PETROLEUM INC. ACREAGE 30.92 ACRES +/-  
OIL & GAS ROYALTY OWNER ASHFORD BROADWATER; TERRY L. SNIDER; TERRY L. SNIDER; LEASE ACREAGE 583.712 ACRES±; 67 ACRES±; 75 ACRES±  
ROBERT A. LOWTHER; CHARLES O. CONAWAY; BERYLE GARNETT MAYFIELD 250 AC±; 44.5 ACRES±; 155.33 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 6,405' TVD 15,177' 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

COUNTY NAME PERMIT





I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN 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 # 16-099WA

DRAWING # EDWARDSHAD

SCALE 1" = 1000'

MINIMUM DEGREE OF ACCURACY

PROVEN SOURCE OF ELEV. SUBMITTER

THOMAS SUMMERS P.S. 2109

DATE 08/01/18

DEPARTMENT OF ENERGY OPERATOR'S WELL # EDWARDS UNIT 3H

STATE OF WEST VIRGINIA

DIVISION OF OIL AND GAS

WELL TYPE: OIL GAS X LIQUID INJECTION

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

LOCATION: ELEVATION 1146.5 AS-BUILT

QUADRANGLE PENNSBORO 7.5 - SH. MIDDLEBOURNE 7.5 - BH. DISTRICT MEADE

COUNTY NAME COUNTY TYLER

WELL OPERATOR ANTERO RESOURCES CORP.

TARGET FORMATION MARCELLUS

DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM

ADDRESS 1615 WYNNKOOP STREET DENVER, CO 80202

FORM WW-6

LEGEND

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

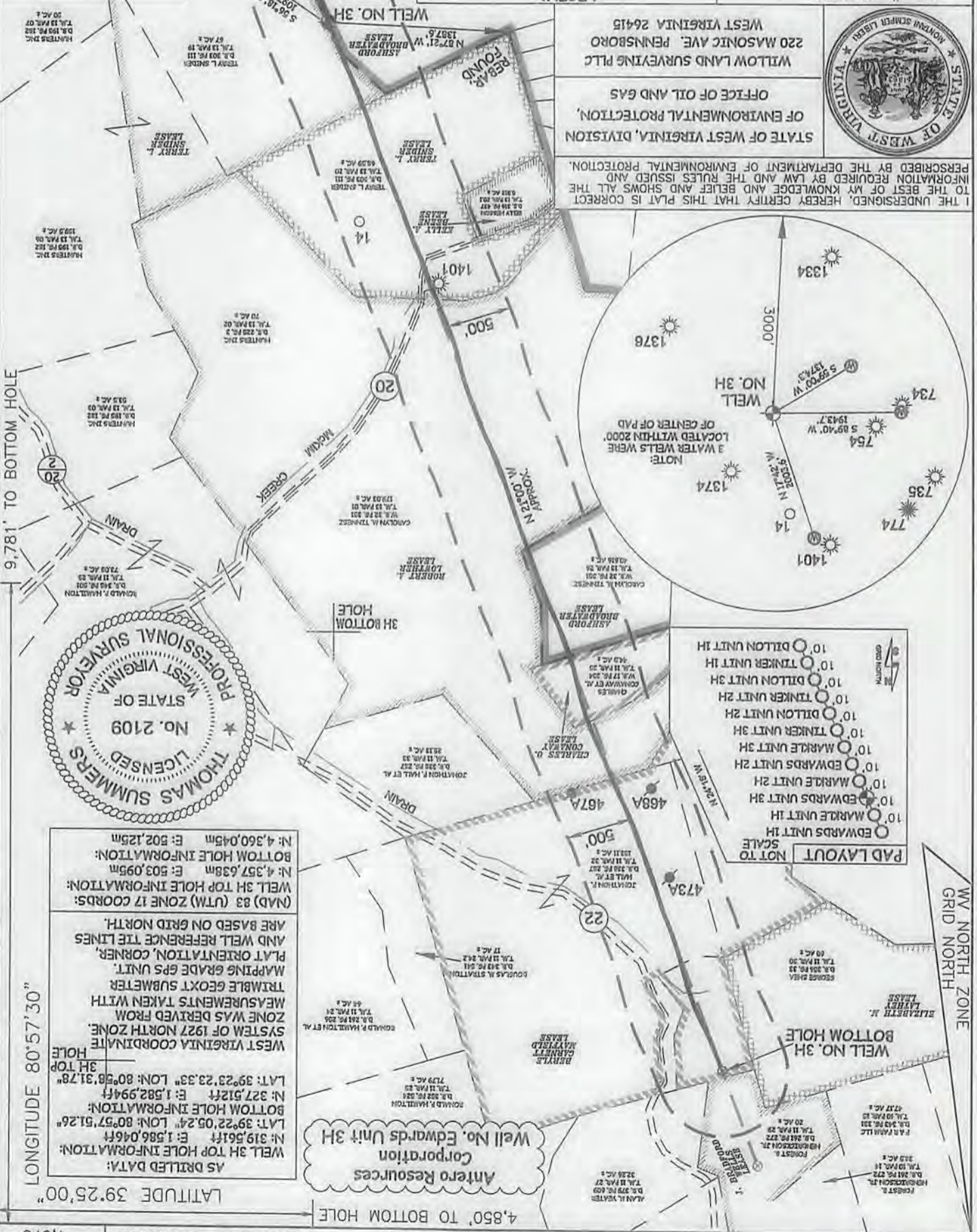
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND (2,000) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DOMESTIC CATTLE OR POULTRY HUMANS ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.

2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.

3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.

4. THIS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN PARTS 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND BOUNDARIES.

5. WAS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



AS DRILLED DATA:

WELL 3H TOP HOLE INFORMATION:  
N: 319.561ft E: 1.586,046ft  
LAT: 39°22'05.24" LON: 80°57'51.26"

BOTTOM HOLE INFORMATION:  
N: 327.512ft E: 1.582,994ft  
LAT: 39°23'23.33" LON: 80°58'31.78"

WELL 3H TOP HOLE COORDS:  
(NAD) 83 (UTM) ZONE 17 COORDS:  
WELL 3H TOP HOLE INFORMATION:  
N: 4,357,638m E: 503,095m  
N: 4,360,045m E: 502,125m

BOTTOM HOLE INFORMATION:  
N: 4,360,045m E: 502,125m

WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIANGLE GEOMX SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

LATITUDE 39°22'30" LONGITUDE 80°57'30" 2,505' 1,670'

WASTE DISPOSAL SHALLOW X DEEP SHALLOW X WATERSHED OUTLET MIDDLE ISLAND CREEK

COUNTY NAME COUNTY TYLER

STATE COUNTY PERMIT 095 - 02349

WELL TYPE: OIL GAS X LIQUID INJECTION

QUADRANGLE PENNSBORO 7.5 - SH. MIDDLEBOURNE 7.5 - BH. DISTRICT MEADE

COUNTY NAME COUNTY TYLER

WELL OPERATOR ANTERO RESOURCES CORP.

TARGET FORMATION MARCELLUS

DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM

ADDRESS 1615 WYNNKOOP STREET DENVER, CO 80202

FORM WW-6

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/29/2017
Job End Date:	11/22/2017
State:	West Virginia
County:	Tyler
API Number:	47-095-02349-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Edwards Unit 3H
Latitude:	39.36812222
Longitude:	-80.96423889
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,456
Total Base Water Volume (gal):	19,417,514
Total Base Non Water Volume:	0



### Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	88.27234	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.15079	

SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
FR-76	Halliburton	Friction Reducer					
				Listed Below			
LP - 50	Halliburton	Scale Inhibitor					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
SAND-COMMON WHITE - 100 MESH, 3307 LB BAG	Halliburton	Proppant					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
SP BREAKER	Halliburton	Breaker					
				Listed Below			

HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
			Crystalline silica, quartz	14808-60-7	100.00000	11.51767	
			Guar gum	9000-30-0	100.00000	0.02580	
			Inorganic salt	Proprietary	30.00000	0.02121	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02121	
			Acrylamide acrylate copolymer	Proprietary	30.00000	0.02121	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Hydrochloric acid	7647-01-0	15.00000	0.01359	
			Methanol	67-56-1	60.00000	0.00418	
			Amines, polyethylenepoly-, ethoxylated, phosphonomethylated, sodium salts	70900-16-2	30.00000	0.00395	
			Glutaraldehyde	111-30-8	30.00000	0.00269	
			Sodium chloride	7647-14-5	5.00000	0.00066	
			Sodium persulfate	7775-27-1	100.00000	0.00060	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00045	
			Ethoxylated alcohols	Proprietary	30.00000	0.00011	
			Modified thiourea polymer	Proprietary	30.00000	0.00011	
			Fatty acids, tall oil	Proprietary	30.00000	0.00011	
			Ethanol	64-17-5	1.00000	0.00009	
			Olefins	Proprietary	5.00000	0.00004	
			Propargyl alcohol	107-19-7	10.00000	0.00004	
			Formaldehyde	50-00-0	0.09000	0.00001	

			Phosphoric acid	7664-38-2	0.10000	0.00001	
			Sodium sulfate	7757-82-6	0.10000	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)