

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

API 47- _____ - _____ County _____ District _____
Quad _____ Pad Name _____ Field/Pool Name _____
Farm name _____ Well Number _____
Operator (as registered with the OOG) _____
Address _____ City _____ State _____ Zip _____

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing _____ Easting _____
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing _____ Easting _____

Elevation (ft) _____ 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)

Date permit issued _____ Date drilling commenced _____ Date drilling ceased _____
Date completion activities began _____ Date completion activities ceased _____
Verbal plugging (Y/N) _____ Date permission granted _____ Granted by _____

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

Freshwater depth(s) ft _____ Open mine(s) (Y/N) depths _____
Salt water depth(s) ft _____ Void(s) encountered (Y/N) depths _____
Coal depth(s) ft _____ Cavern(s) encountered (Y/N) depths _____
Is coal being mined in area (Y/N) _____

Reviewed by:

API 47- _____ - _____ Farm name _____ Well number _____

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							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							
Packer type and depth set							

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							
Surface							
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production							
Tubing							

Drillers TD (ft) _____ Loggers TD (ft) _____
 Deepest formation penetrated _____ Plug back to (ft) _____
 Plug back procedure _____

Kick off depth (ft) _____

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 _____

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 _____

API 47- ___ - _____ Farm name _____ Well number _____

PERFORATION RECORD

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

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
*PLEASE SEE ATTACHED EXHIBIT 2								

Please insert additional pages as applicable.

API 47- _____ - _____ Farm name _____ Well number _____

PRODUCING FORMATION(S)

DEPTHS

_____	_____ TVD	_____ MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

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

OPEN FLOW Gas _____ mcfpd Oil _____ bpd NGL _____ bpd Water _____ bpd

GAS MEASURED BY Estimated Orifice Pilot

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

Please insert additional pages as applicable.

Drilling Contractor _____
Address _____ City _____ State _____ Zip _____

Logging Company _____
Address _____ City _____ State _____ Zip _____

Cementing Company _____
Address _____ City _____ State _____ Zip _____

Stimulating Company _____
Address _____ City _____ State _____ Zip _____

Please insert additional pages as applicable.

Completed by _____ Telephone _____
Signature _____ Title _____ Date _____

API 47-095-02375 Farm Name Terry L. Snider Well Number Tinker Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	11/25/2017	14845	15014	60	Marcellus
2	11/25/2017	14645	14814	60	Marcellus
3	11/26/2017	14445	14614	60	Marcellus
4	11/27/2017	14245	14414	60	Marcellus
5	11/28/2017	14045	14213	60	Marcellus
6	11/28/2017	13844	14013	60	Marcellus
7	11/29/2017	13644	13813	60	Marcellus
8	11/29/2017	13444	13613	60	Marcellus
9	11/29/2017	13244	13413	60	Marcellus
10	11/30/2017	13044	13213	60	Marcellus
11	12/1/2017	12844	13012	60	Marcellus
12	12/1/2017	12643	12812	60	Marcellus
13	12/1/2017	12443	12612	60	Marcellus
14	12/2/2017	12243	12412	60	Marcellus
15	12/3/2017	12043	12212	60	Marcellus
16	12/3/2017	11843	12012	60	Marcellus
17	12/4/2017	11643	11811	60	Marcellus
18	12/4/2017	11442	11611	60	Marcellus
19	12/4/2017	11242	11411	60	Marcellus
20	12/5/2017	11042	11211	60	Marcellus
21	12/5/2017	10842	11011	60	Marcellus
22	12/6/2017	10642	10811	60	Marcellus
23	12/7/2017	10442	10610	60	Marcellus
24	12/8/2017	10242	10410	60	Marcellus
25	12/10/2017	10041	10210	60	Marcellus
26	12/10/2017	9841	10010	60	Marcellus
27	12/12/2017	9641	9810	60	Marcellus
28	12/13/2017	9441	9610	60	Marcellus
29	12/15/2017	9241	9410	60	Marcellus
30	12/16/2017	9041	9209	60	Marcellus
31	12/17/2017	8840	9009	60	Marcellus
32	12/17/2017	8640	8809	60	Marcellus
33	12/18/2017	8440	8609	60	Marcellus
34	12/19/2017	8240	8409	60	Marcellus
35	12/20/2017	8040	8209	60	Marcellus
36	12/22/2017	7840	8008	60	Marcellus
37	12/23/2017	7639	7808	60	Marcellus
38	12/24/2017	7439	7608	60	Marcellus
39	12/26/2017	7239	7408	60	Marcellus
40	12/28/2017	7039	7208	60	Marcellus
41	12/30/2017	6839	7008	60	Marcellus
42	12/30/2017	6639	6807	60	Marcellus

API 47-095-02375 Farm Name Terry L. Snider Well Number Tinker Unit 1H

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	11/25/2017	70.4	7353		3159	10512	10552.2	N/A
2	11/25/2017	73.2	7297	6074	3365	16736	11016	N/A
3	11/26/2017	68.7	7397	5840	3713	16950	10742.7	N/A
4	11/27/2017	70.9	7289	6070	3654	17013	12337.4	N/A
5	11/28/2017	74.3	7051	5352	3572	15975	10686.7	N/A
6	11/28/2017	73.2	7320	5314	3714	16348	11586.9	N/A
7	11/29/2017	70.8	7285	5522	3695	16502	10762.5	N/A
8	11/29/2017	76.2	7406	5401	3902	16709	10477.7	N/A
9	11/29/2017	75.1	7260	5935	3913	17108	10361.2	N/A
10	11/30/2017	75	7161	5906	3796	16863	10245.6	N/A
11	12/1/2017	71.7	6848	5599	4108	16555	10103	N/A
12	12/1/2017	69.5	7111	6277	4175	17563	11027	N/A
13	12/1/2017	74.6	7086	5504	3938	16528	10336.6	N/A
14	12/2/2017	75	7022	5470	3953	16445	11541.7	N/A
15	12/3/2017	72.5	6821	5940	4089	16850	10647.2	N/A
16	12/3/2017	69.5	7017	5527	4028	16572	10454.1	N/A
17	12/4/2017	73.4	7084	5527	3818	16429	10612.9	N/A
18	12/4/2017	75.5	6995	5393	4296	16684	11248.6	N/A
19	12/4/2017	74.7	6764	5806	4009	16579	10347.7	N/A
20	12/5/2017	70.5	6764	5473	4107	16344	10356.8	N/A
21	12/5/2017	76.2	7089	5564	4032	16685	10555.6	N/A
22	12/6/2017	72.8	7204	5319	4169	16692	12270.4	N/A
23	12/7/2017	71.6	7570	5282	3836	16688	11863.6	N/A
24	12/8/2017	73.7	7025	5080	3857	15962	11508	N/A
25	12/10/2017	56.9	7473	5143	3919	16535	15151.6	N/A
26	12/10/2017	74.4	7022	5313	4004	16339	10041.1	N/A
27	12/12/2017	71.1	6717	5208	4128	16053	10162.2	N/A
28	12/13/2017	76	7354	5850	3791	16995	10284.4	N/A
29	12/15/2017	77.8	6956	5466	3798	16220	10276.4	N/A
30	12/16/2017	79.6	6953	5262	3828	16043	10495.2	N/A
31	12/17/2017	79.3	6733	5279	3834	15846	10274.7	N/A
32	12/17/2017	80.4	6904	5512	3981	16397	10331.4	N/A
33	12/18/2017	76.8	6862	5609	4045	16516	10653.8	N/A
34	12/19/2017	79.4	6785	5678	3907	16370	10504.9	N/A
35	12/20/2017	79.4	7039	6312	3784	17135	10659.4	N/A
36	12/22/2017	80.4	6889	5771	3819	16479	10635.2	N/A
37	12/23/2017	80.1	6684	6183	3937	16804	10623.1	N/A
38	12/24/2017	80.3	6816	5416	3730	15962	10504.8	N/A
39	12/26/2017	51.9	7241	6093	6000	19334	10396.6	N/A
40	12/28/2017	79.6	6602	5319	4141	16062	11631.1	N/A
41	12/30/2017	80	6233	5151	3907	15291	10942.4	N/A
42	12/30/2017	79.9	6369	6083	3707	16159	10856.8	N/A
	AVG=	74.1	7,020	5,605	3,932	689,832	456,067	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
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 Shale w/trace Coal	1,380	N/A	1,380	N/A
Silty Sandstone	1,520	N/A	1,520	N/A
Sandstone w/trace Coal	1,600	N/A	1,600	N/A
Silty Sandstone	1,680	N/A	1,680	N/A
Shale w/trace Coal	1,740	N/A	1,740	N/A
Silty Sandstone	1,840	N/A	1,840	N/A
Big Lime	2,016	N/A	2,017	N/A
Big Injun	2,154	N/A	2,156	N/A
Gantz Sand	2,558	N/A	2,559	N/A
Fifty Foot Sandstone	2,821	N/A	2,823	N/A
Gordon	2,933	N/A	2,934	N/A
Fifth Sandstone	3,213	N/A	3,215	N/A
Bayard	3,277	N/A	3,279	N/A
Warren	3,669	N/A	3,677	N/A
Speechley	4,020	N/A	4,038	N/A
Balltown	4,309	N/A	4,336	N/A
Bradford	4,694	N/A	4,731	N/A
Benson	5,028	N/A	5,076	N/A
Alexander	5,275	N/A	5,332	N/A
Rhinestreet	5,844	N/A	5,919	N/A
Sycamore	6,184	N/A	6,284	N/A
Middlesex	6,277	N/A	6,399	N/A
Burkett	6,370	N/A	6,546	N/A
Tully	6,393	N/A	6,597	N/A
Marcellus	6,402	N/A	6,619	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.

LATITUDE 39°22'30" 1.636'

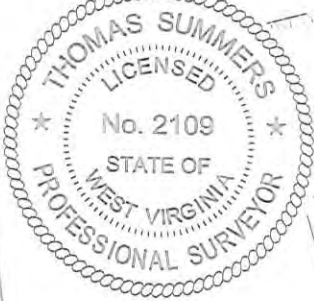
4,171' TO BOTTOM HOLE

LATITUDE 39°25'00"

LONGITUDE 80°57'30"

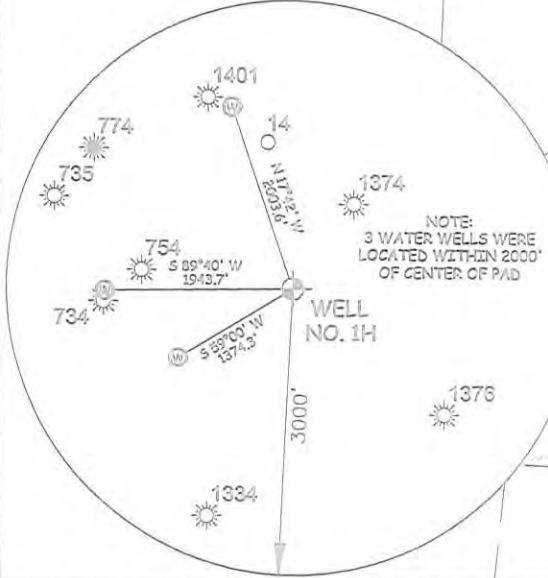
2,578' LONGITUDE 80°57'30"

Antero Resources Corporation
Well No. Tinker Unit 1H



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



AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
 N: 319,488ft E: 1,586,079ft
 LAT: 39°22'04.52" LON: 80°57'50.83"
BOTTOM HOLE INFORMATION:
 N: 327,675ft E: 1,583,676ft
 LAT: 39°23'25.05" LON: 80°58'23.13"

WEST VIRGINIA COORDINATE HOLE 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: 4,357,616m E: 503,105m
BOTTOM HOLE INFORMATION:
 N: 4,360,098m E: 502,332m

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

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND 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 # 15-031WA
 DRAWING # TINKER1HAD
 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

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

DATE 08/01/18 OPERATOR'S WELL# TINKER UNIT 1H

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ 47 - 095 - 02375
 (IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X STATE COUNTY PERMIT
 LOCATION: ELEVATION 1,146.5' AS-BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK

QUADRANGLE PENNSBORO 7.5' - SHI 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 593.712 ACRES +/-; 67 ACRES +/-; 75 ACRES +/-; ROBERT A. LOWTHER; CARLA WARNER TINKER; BERYLE GARNETT MAYFIELD 250 ACRES +/-; 25.125 AC +/-; 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 6,421' TVD 15,116' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM

ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313