

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 _____

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

***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 47-095-02287 Farm Name Terry L. Snider Well Number Tinker Unit 2H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	11/24/2017	15120	15289	60	Marcellus
2	11/24/2017	14920	15089	60	Marcellus
3	11/24/2017	14720	14889	60	Marcellus
4	11/25/2017	14520	14689	60	Marcellus
5	11/26/2017	14320	14489	60	Marcellus
6	11/27/2017	14120	14289	60	Marcellus
7	11/28/2017	13920	14088	60	Marcellus
8	11/28/2017	13720	13888	60	Marcellus
9	11/29/2017	13520	13688	60	Marcellus
10	11/29/2017	13319	13488	60	Marcellus
11	11/29/2017	13119	13288	60	Marcellus
12	11/30/2017	12919	13088	60	Marcellus
13	11/30/2017	12719	12888	60	Marcellus
14	12/1/2017	12519	12688	60	Marcellus
15	12/1/2017	12319	12488	60	Marcellus
16	12/1/2017	12119	12288	60	Marcellus
17	12/2/2017	11919	12088	60	Marcellus
18	12/3/2017	11719	11888	60	Marcellus
19	12/3/2017	11519	11687	60	Marcellus
20	12/4/2017	11319	11487	60	Marcellus
21	12/4/2017	11119	11287	60	Marcellus
22	12/4/2017	10918	11087	60	Marcellus
23	12/5/2017	10718	10887	60	Marcellus
24	12/5/2017	10518	10687	60	Marcellus
25	12/7/2017	10318	10487	60	Marcellus
26	12/9/2017	10118	10287	60	Marcellus
27	12/10/2017	9918	10087	60	Marcellus
28	12/11/2017	9718	9887	60	Marcellus
29	12/12/2017	9518	9687	60	Marcellus
30	12/14/2017	9318	9486	60	Marcellus
31	12/15/2017	9118	9286	60	Marcellus
32	12/16/2017	8918	9086	60	Marcellus
33	12/17/2017	8717	8886	60	Marcellus
34	12/18/2017	8517	8686	60	Marcellus
35	12/19/2017	8317	8486	60	Marcellus
36	12/20/2017	8117	8286	60	Marcellus
37	12/21/2017	7917	8086	60	Marcellus
38	12/22/2017	7717	7886	60	Marcellus
39	12/23/2017	7517	7686	60	Marcellus
40	12/26/2017	7317	7486	60	Marcellus
41	12/27/2017	7117	7285	60	Marcellus
42	12/29/2017	6917	7085	60	Marcellus

API 47-095-02287 Farm Name Terry L. Snider Well Number Tinker Unit 2H

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	11/24/2017	74.5	7105		2806	9911	10239.8	N/A
2	11/24/2017	74.6	7148	5789	2902	15839	10407.8	N/A
3	11/24/2017	74.2	7347	5860	3176	16383	10396.3	N/A
4	11/25/2017	72.6	7469	5565	4166	17200	11643.3	N/A
5	11/26/2017	61.1	7532	5590	4848	17970	10471.7	N/A
6	11/27/2017	69.6	7752	5382	4704	17838	18006.9	N/A
7	11/28/2017	69.9	7393	5308	3292	15993	10877.5	N/A
8	11/28/2017	74.8	7315	5354	3517	16186	10506.2	N/A
9	11/29/2017	73.7	7184	5287	3589	16060	10923.7	N/A
10	11/29/2017	70.3	6975	5319	3267	15561	10342.8	N/A
11	11/29/2017	74.2	6986	5145	3561	15692	10560.3	N/A
12	11/30/2017	76.5	7212	5201	4764	17177	11429.4	N/A
13	11/30/2017	77	7138	5492	3555	16185	10666.8	N/A
14	12/1/2017	68.6	6792	5449	3728	15969	11880.4	N/A
15	12/1/2017	70.3	6921	5122	3905	15948	12379	N/A
16	12/1/2017	72.1	7119	5074	4543	16736	12017.5	N/A
17	12/2/2017	64.9	6928	5527	6189	18644	8943.4	N/A
18	12/3/2017	67	6725	5338	3411	15474	10576	N/A
19	12/3/2017	72.2	7051	5190	3702	15943	10839.7	N/A
20	12/4/2017	71.2	7209	5217	3240	15666	13086	N/A
21	12/4/2017	75.3	6967	5250	3387	15604	11666	N/A
22	12/4/2017	70.1	6729	5364	3792	15885	10466.8	N/A
23	12/5/2017	72.5	6803	5287	4821	16911	10656.8	N/A
24	12/5/2017	75.5	6886	5557	3313	15756	10163	N/A
25	12/7/2017	70.5	7529	5212	4911	17652	13493.4	N/A
26	12/9/2017	57.8	7559	5086	4723	17368	17855.3	N/A
27	12/10/2017	68.1	7030	5276	3417	15723	12364.8	N/A
28	12/11/2017	62.9	6815	5136	3482	15433	17100.8	N/A
29	12/12/2017	70.3	7224	5007	4271	16502	11243.3	N/A
30	12/14/2017	78.7	6741	5080	3445	15266	10982.9	N/A
31	12/15/2017	81.2	7037	5253	3570	15860	10384.5	N/A
32	12/16/2017	80	6889	5328	4012	16229	10796.7	N/A
33	12/17/2017	80.2	6802	5324	3215	15341	10575.4	N/A
34	12/18/2017	80.6	6658	5627	3562	15847	10727.9	N/A
35	12/19/2017	77.6	6679	5436	3192	15307	10392.2	N/A
36	12/20/2017	78.5	6802	5266	3780	15848	10589.4	N/A
37	12/21/2017	79.5	6892	5344	3270	15506	11922.4	N/A
38	12/22/2017	77.2	6788	5365	3670	15823	12007.2	N/A
39	12/23/2017	78.7	7203	5480	5076	17759	17257.3	N/A
40	12/26/2017	76.9	6661	5483	4576	16720	12306.4	N/A
41	12/27/2017	79.3	6756	4927	5243	16926	11170.5	N/A
42	12/29/2017	78.6	6529	5184	3371	15084	16418.2	N/A
	AVG=	73.3	7,030	5,329	3,880	676,725	496,736	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
Silyt 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	2,007	N/A	2,008	N/A
Big Injun	2,152	N/A	2,153	N/A
Gantz Sand	2,558	N/A	2,559	N/A
Fifty Foot Sandstone	2,848	N/A	2,849	N/A
Gordon	2,937	N/A	2,939	N/A
Fifth Sandstone	3,215	N/A	3,224	N/A
Bayard	3,284	N/A	3,295	N/A
Warren	3,671	N/A	3,709	N/A
Speechley	4,010	N/A	4,084	N/A
Balltown	4,297	N/A	4,403	N/A
Bradford	4,690	N/A	4,836	N/A
Benson	5,054	N/A	5,245	N/A
Alexander	5,295	N/A	5,507	N/A
Rhinestreet	5,853	N/A	6,121	N/A
Sycamore	6,191	N/A	6,524	N/A
Middlesex	6,285	N/A	6,661	N/A
Burkett	6,381	N/A	6,823	N/A
Tully	6,404	N/A	6,871	N/A
Marcellus	6,414	N/A	6,897	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" 1,653'

LATITUDE 39°25'00"

LONGITUDE 80°57'30"

LONGITUDE 80°57'30"

Antero Resources Corporation
Well No. Tinker Unit 3H



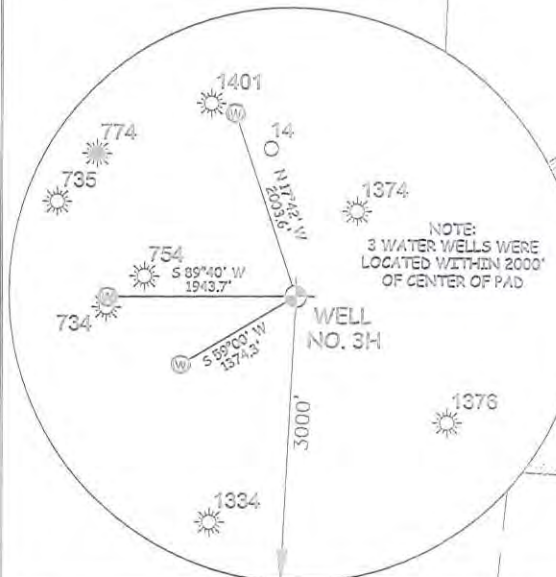
NOTES:
 WELL 3H TOP HOLE INFORMATION:
 N: 319,525ft E: 1,586,063ft
 LAT: 39°22'04.88" LON: 80°57'51.05"
 BOTTOM HOLE INFORMATION:
 N: 328,068ft E: 1,584,943ft
 LAT: 39°23'29.13" LON: 80°58'07.08"

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 3H TOP HOLE INFORMATION:
 N: 4,357,627m E: 503,100m
 BOTTOM HOLE INFORMATION:
 N: 4,360,224m E: 502,716m

PAD LAYOUT NOT TO SCALE

- 10' EDWARDS UNIT 1H
- 10' MARKLE UNIT 2H
- 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



- 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 # TINKER3HAD
 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# TINKER UNIT #3H

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL 47 - 095 - 02295

(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 1,147' AS-BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK

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; HUNTERS INC.; LEASE ACREAGE 503.71 ACRES; 67 ACRES; 471.20 ACRES; ROBERT A. LOWTHER; RONALD P. HAMILTON; CARLA WARNER TINKER; RONALD P. HAMILTON; MICHAEL E. ANKROM; DAVID A. BILL 250 ACRES; 73.08 AC; 25.125 AC; 62.58 AC; 81 AC; 65.29 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

TARGET FORMATION MARCELLUS PLUG & ABANDON CLEAN OUT & REPLUG

WELL OPERATOR ANTERO RESOURCES CORP. ESTIMATED DEPTH 6,449' TVD 15,454' MD

ADDRESS 1615 WYNKOOP STREET DESIGNATED AGENT DJANNA STAMPER - CT CORPORATION SYSTEM

ADDRESS 5400 D BIG TYLER ROAD

DENVER, CO 80202 CHARLESTON, WV 25313