

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

RECEIVED  
Office of Oil and Gas  
FEB 8 2018

WV Department of  
Environmental Protection

API 47 - 033 - 05715 County Harrison District Union  
Quad Big Isaac 7.5' Pad Name Corder East Pad Field/Pool Name -----  
Farm name Gerald & Louella Corder Well Number Truman 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 4341560.958m Easting 538531.414m  
Landing Point of Curve Northing 4341488.812m Easting 538134.633m  
Bottom Hole Northing 4342711.847m Easting 536611.066m

Elevation (ft) 1405' 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 01/29/2013 Date drilling commenced 03/29/2014 Date drilling ceased 07/16/2014  
Date completion activities began 08/13/2014 Date completion activities ceased 10/01/2017  
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 87', 347' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 507', 984' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 327', 887', 1667' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed

SDW  
4/11/2018

Reviewed by: \_\_\_\_\_

API 47-033 - 05715 Farm name Gerald & Louella Corder Well number Truman Unit 2H

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"	40'	New	106.5#, K-55	N/A	Y
Surface	17-1/2"	13-3/8"	366'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2490'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	14768'	New	20#, P-110	N/A	Y
Tubing		2-3/8"	7633'		5.95#, P-110		
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	196 sx	15.6	1.18	231	0'	8 Hrs.
Surface	Class A	436 sx	15.6	1.18	514	0'	8 Hrs.
Coal							
Intermediate 1	Class A	916 sx	15.6	1.18	1081	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1033 sx (Lead), 1211 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.0 (Lead), 2.00 (Tail)	3455	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 14768' MD, 7494' TVD (BHL) & 7523' TVD (Deepest Point Drilled) Loggers TD (ft) 14720' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6921'

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

\*\* This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Cleta Unit 2H API# 47-033-05651). Please reference the wireline logs submitted with Form WR-35 for the Cleta Unit 2H. A Cement Bond Log has been included with this submittal.

API 47- 033 - 05715 Farm name Gerald & Louella Corder Well number Truman 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.

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.

API 47- 033 - 05715 Farm name Gerald & Louella Corder Well number Truman Unit 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>7343' (TOP)</u>	<u>TVD</u>	<u>7464' (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 3600 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 11280 mcfpd Oil 4 bpd NGL --- bpd Water .19 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 Rush Wellsite Services  
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

Cementing Company Allied Oil & Gas Services, LLC  
Address 1036 East Main Street City Bridgeport State WV Zip 26330

Stimulating Company US Well Services  
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 02/07/2018

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	8/13/2014	14540	14677	48	Marcellus
2	8/21/2017	14377	14515	48	Marcellus
3	8/21/2017	14215	14352	48	Marcellus
4	8/22/2017	13882	14049	48	Marcellus
5	8/22/2017	13683	13851	48	Marcellus
6	8/22/2017	13485	13652	48	Marcellus
7	8/23/2017	13286	13454	48	Marcellus
8	8/24/2017	13088	13255	48	Marcellus
9	8/24/2017	12890	13057	48	Marcellus
10	8/25/2017	12691	12858	48	Marcellus
11	8/25/2017	12493	12660	48	Marcellus
12	8/26/2017	12294	12462	48	Marcellus
13	8/27/2017	12096	12263	48	Marcellus
14	8/27/2017	11897	12065	48	Marcellus
15	8/28/2017	11699	11866	48	Marcellus
16	8/29/2017	11501	11668	48	Marcellus
17	8/29/2017	11302	11469	48	Marcellus
18	8/30/2017	11104	11271	48	Marcellus
19	8/31/2017	10905	11073	48	Marcellus
20	8/31/2017	10707	10874	48	Marcellus
21	9/1/2017	10508	10676	48	Marcellus
22	9/1/2017	10310	10477	48	Marcellus
23	9/1/2017	10112	10279	48	Marcellus
24	9/3/2017	9913	10080	48	Marcellus
25	9/3/2017	9715	9882	48	Marcellus
26	9/4/2017	9516	9684	48	Marcellus
27	9/4/2017	9318	9485	48	Marcellus
28	9/5/2017	9119	9287	48	Marcellus
29	9/5/2017	8921	9088	48	Marcellus
30	9/6/2017	8723	8890	48	Marcellus
31	9/6/2017	8524	8691	48	Marcellus
32	9/7/2017	8326	8493	48	Marcellus
33	9/7/2017	8127	8295	48	Marcellus
34	9/8/2017	7929	8096	48	Marcellus
35	9/8/2017	7730	7898	48	Marcellus

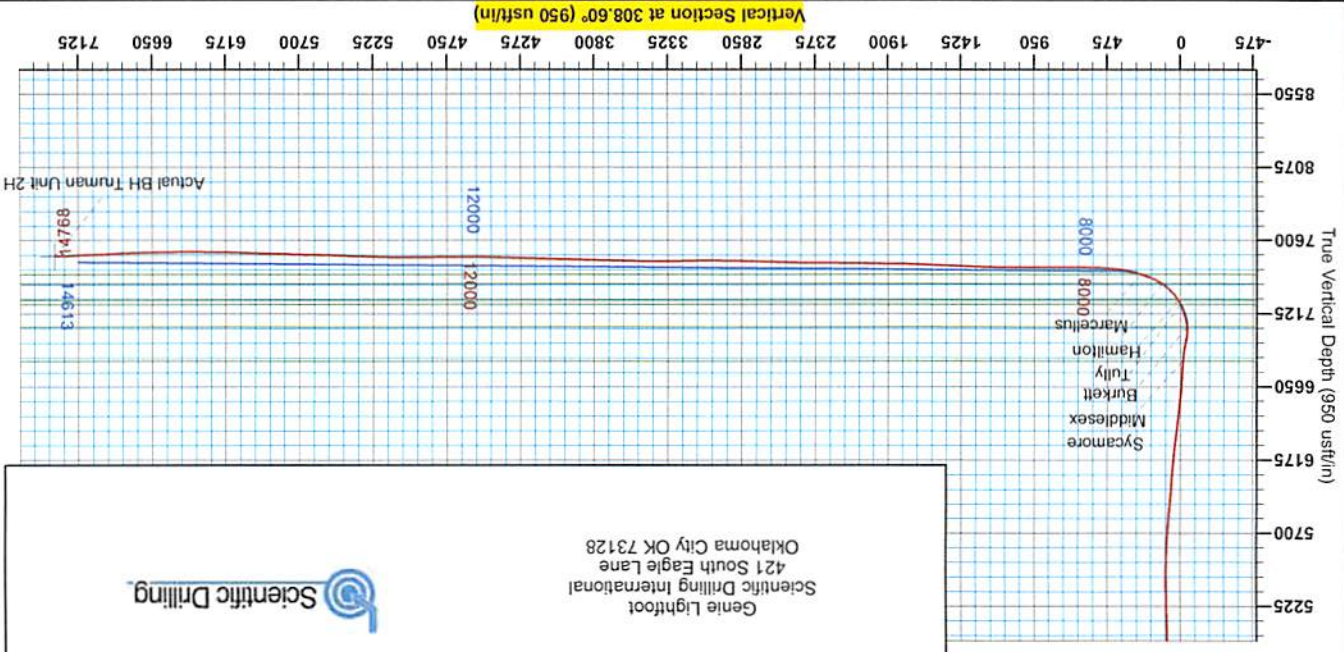
**EXHIBIT 2**

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	8/20/2017	70.3	7626	0	4277	141700	7052	N/A
2	8/21/2017	73.2	7329	5663	4528	140780	8532	N/A
3	8/21/2017	70.2	7574	5939	5109	142000	6962	N/A
4	8/22/2017	69.8	7447	6216	4924	210300	8331	N/A
5	8/22/2017	66.8	7472	6077	5067	209850	8446	N/A
6	8/22/2017	72.8	8009	5940	5343	209200	8332	N/A
7	8/23/2017	79.7	8101	5869	4867	210750	8588	N/A
8	8/24/2017	80.1	7761	5962	4932	209150	8348	N/A
9	8/24/2017	80.0	7643	5785	4795	210910	8326	N/A
10	8/25/2017	71.7	7458	5649	4714	209200	8517	N/A
11	8/25/2017	73.9	7680	5565	5169	209000	8702	N/A
12	8/26/2017	75.1	7627	5758	5230	209850	8348	N/A
13	8/27/2017	77.5	7393	5668	5143	209580	8496	N/A
14	8/27/2017	75.0	7478	5702	4945	208000	8267	N/A
15	8/28/2017	80.3	7625	5475	4292	209500	8312	N/A
16	8/29/2017	80.3	7275	6206	4761	210720	8564	N/A
17	8/29/2017	74.9	7224	5667	5032	210950	8408	N/A
18	8/30/2017	78.1	8096	5725	4651	209320	8347	N/A
19	8/31/2017	75.3	7366	5746	5423	210100	8227	N/A
20	8/31/2017	77.4	7274	5686	5090	210500	8320	N/A
21	9/1/2017	75.7	7324	5930	5529	210430	9348	N/A
22	9/1/2017	78.6	7595	5764	5136	209700	8231	N/A
23	9/1/2017	76.8	7575	6129	5714	210540	8438	N/A
24	9/3/2017	75.2	7754	5929	4774	210540	7953	N/A
25	9/3/2017	73.2	7664	5903	5493	210410	8909	N/A
26	9/4/2017	72.7	7543	5717	4718	209250	9016	N/A
27	9/4/2017	73.8	7542	5665	5107	210190	7975	N/A
28	9/5/2017	75.9	7434	5719	4927	208770	8304	N/A
29	9/5/2017	74.5	7573	6013	5568	209830	8318	N/A
30	9/6/2017	73.9	7567	5754	5230	210900	8475	N/A
31	9/6/2017	73.9	7041	5544	4993	210960	7755	N/A
32	9/7/2017	75.9	7641	5736	4811	211100	8038	N/A
33	9/7/2017	75.3	7253	5869	5356	210400	8460	N/A
34	9/8/2017	74.1	7195	6031	5202	210500	8769	N/A
35	9/8/2017	69.7	6767	6462	5216	211400	10069	N/A
<b>AVG=</b>		<b>74.9</b>	<b>7,512</b>	<b>5,670</b>	<b>5,030</b>	<b>7,146,280</b>	<b>293,484</b>	<b>TOTAL</b>



Antero Resources  
 Truman Unit 2H  
 Harrison County West Virginia  
 Northing: 14243219.48  
 Easting: 1766783.11  
 As Drilled

Paterson - Truman 2H 1405 GL + 25 KB @ 1430 Quat  
 GR: 1405.0



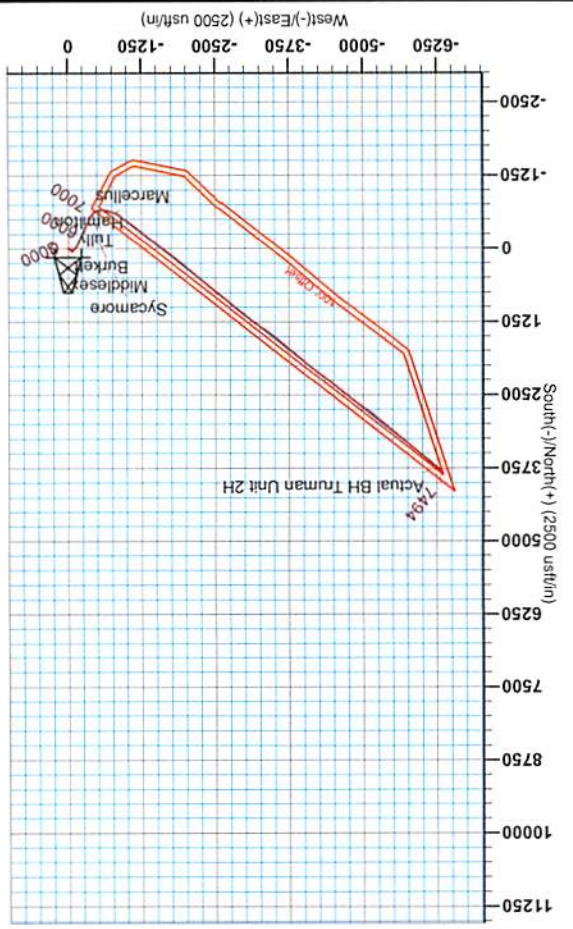
**Scientific Drilling**  
 Genie Lightfoot  
 421 South Eagle Lane  
 Oklahoma City OK 73128

WELL DETAILS: Truman Unit 2H	
+N-S	14243219.48
+E-W	1766783.11
Northing	1766783.11
Easting	1766783.11
Ground Level:	1405.0
Latitude	33° 13' 20.504 N
Longitude	80° 33' 13.701 W
Slut	

DESIGN TARGET DETAILS	
Name	Actual BH Truman Unit 2H
TVD	7403.9
+N-S	3775.0
+E-W	-4299.514246997
Northing	1760783.64307
Easting	1750483.64307
Latitude	33° 13' 20.503 N
Longitude	80° 33' 13.701 W
Shape	

PROJECT DETAILS: Harrison County West Virginia	
Geosodic System:	Universal Transverse Mercator (US Survey Feet)
Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1866
Zone:	17N (84 W to 78 W)
System Datum:	Mean Sea Level

REFERENCE INFORMATION	
Coordinate (N/E):	Reference: Paterson Truman Unit 2H Gnd Minn
Shooting (V/S):	Reference: Paterson Truman Unit 2H Gnd Minn
Shooting (V/S):	Reference: SMI - 10.04.081
Measured Depth:	Reference: Paterson Truman 2H 1405 GL + 25 KB @ 1430 Quat
Measured Depth:	Reference: Paterson Truman 2H 1405 GL + 25 KB @ 1430 Quat
Calculation Method:	Trueman Curvature



M  
T  
G

To convert True North to Gnd. Subtract 0.28°  
 To convert Magnetic North to Gnd. Subtract 0.28°

Asimuths to Gnd North  
 True North: -0.28°  
 Magnetic North: -0.89°  
 Magnetic Field  
 Strength: 52267.4nT  
 Dip Angle: 66.76°  
 Date: 2/27/2014  
 Model: IGRF2010



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Truman Unit 2H
<b>Project:</b>	Harrison County West Virginia	<b>TVD Reference:</b>	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
<b>Site:</b>	Cleta / Opie / Maude Pad	<b>MD Reference:</b>	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
<b>Well:</b>	Truman Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

<b>Project</b>	Harrison County West Virginia, Harrison County, USA		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)		

<b>Site</b>	Cleta / Opie / Maude Pad, SHL Cleta Unit 1H				
<b>Site Position:</b>		<b>Northing:</b>	14,243,194.63 usft	<b>Latitude:</b>	39° 13' 20.344 N
<b>From:</b>	Map	<b>Easting:</b>	1,766,859.11 usft	<b>Longitude:</b>	80° 33' 12.736 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b>	0.28 °

<b>Well</b>	Truman Unit 2H, Marcellus					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,243,219.48 usft	<b>Latitude:</b>	39° 13' 20.594 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,766,783.11 usft	<b>Longitude:</b>	80° 33' 13.701 W
<b>Position Uncertainty</b>		2.0 usft	<b>Wellhead Elevation:</b>	1,430.0 usft	<b>Ground Level:</b>	1,405.0 usft

<b>Wellbore</b>	Original Wellpath				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/27/2014	-8.61	66.76	52,267

<b>Design</b>	As Drilled				
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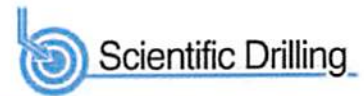
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	308.60

Survey Program	Date	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	7/30/2014	112.0	6,716.0	Survey #6 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
		6,808.0	14,768.0	Survey #7 MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	14,243,219.48	1,766,783.11	39° 13' 20.594 N	80° 33' 13.701 W
112.0	0.20	174.14	112.0	-0.2	0.0	14,243,219.29	1,766,783.13	39° 13' 20.592 N	80° 33' 13.701 W
212.0	0.27	206.27	212.0	-0.6	-0.1	14,243,218.90	1,766,783.04	39° 13' 20.588 N	80° 33' 13.702 W
312.0	0.16	160.66	312.0	-0.9	-0.1	14,243,218.56	1,766,782.98	39° 13' 20.584 N	80° 33' 13.703 W
412.0	0.37	158.43	412.0	-1.4	0.0	14,243,218.13	1,766,783.15	39° 13' 20.580 N	80° 33' 13.701 W
512.0	0.26	164.57	512.0	-1.9	0.2	14,243,217.61	1,766,783.33	39° 13' 20.575 N	80° 33' 13.698 W
612.0	0.20	103.43	612.0	-2.1	0.4	14,243,217.35	1,766,783.56	39° 13' 20.572 N	80° 33' 13.695 W
712.0	0.39	126.09	712.0	-2.4	0.9	14,243,217.11	1,766,784.00	39° 13' 20.570 N	80° 33' 13.690 W
812.0	0.26	125.76	812.0	-2.7	1.4	14,243,216.78	1,766,784.46	39° 13' 20.567 N	80° 33' 13.684 W





<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Truman Unit 2H
<b>Project:</b>	Harrison County West Virginia	<b>TVD Reference:</b>	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
<b>Site:</b>	Cleta / Opie / Maude Pad	<b>MD Reference:</b>	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
<b>Well:</b>	Truman Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
912.0	0.45	118.85	912.0	-3.0	1.9	14,243,216.45	1,766,784.99	39° 13' 20.563 N	80° 33' 13.677 W	
1,012.0	0.34	135.20	1,012.0	-3.4	2.4	14,243,216.05	1,766,785.54	39° 13' 20.559 N	80° 33' 13.670 W	
1,112.0	0.33	123.34	1,112.0	-3.8	2.9	14,243,215.68	1,766,785.99	39° 13' 20.556 N	80° 33' 13.665 W	
1,212.0	0.42	125.97	1,212.0	-4.2	3.4	14,243,215.31	1,766,786.53	39° 13' 20.552 N	80° 33' 13.658 W	
1,312.0	3.50	284.24	1,311.9	-3.6	0.8	14,243,215.85	1,766,783.86	39° 13' 20.558 N	80° 33' 13.692 W	
1,412.0	6.43	290.26	1,411.5	-0.9	-7.5	14,243,218.54	1,766,775.65	39° 13' 20.585 N	80° 33' 13.796 W	
1,512.0	6.93	290.83	1,510.9	3.1	-18.3	14,243,222.62	1,766,764.76	39° 13' 20.625 N	80° 33' 13.934 W	
1,612.0	6.04	298.71	1,610.2	7.8	-28.6	14,243,247.29	1,766,754.51	39° 13' 20.672 N	80° 33' 14.064 W	
1,712.0	4.20	316.42	1,709.8	13.0	-35.7	14,243,232.48	1,766,747.37	39° 13' 20.724 N	80° 33' 14.155 W	
1,812.0	3.92	317.12	1,809.6	18.2	-40.6	14,243,237.63	1,766,742.52	39° 13' 20.775 N	80° 33' 14.216 W	
1,912.0	3.46	320.58	1,909.4	23.0	-44.8	14,243,242.47	1,766,738.27	39° 13' 20.823 N	80° 33' 14.269 W	
2,012.0	3.25	322.99	2,009.2	27.6	-48.5	14,243,247.06	1,766,734.65	39° 13' 20.869 N	80° 33' 14.315 W	
2,112.0	2.92	322.27	2,109.1	31.9	-51.7	14,243,251.34	1,766,731.39	39° 13' 20.911 N	80° 33' 14.356 W	
2,212.0	2.80	324.03	2,208.9	35.9	-54.7	14,243,255.33	1,766,728.39	39° 13' 20.951 N	80° 33' 14.394 W	
2,312.0	2.61	325.04	2,308.8	39.7	-57.5	14,243,259.18	1,766,725.65	39° 13' 20.989 N	80° 33' 14.429 W	
2,412.0	2.33	329.79	2,408.7	43.3	-59.8	14,243,262.80	1,766,723.33	39° 13' 21.025 N	80° 33' 14.458 W	
2,512.0	2.21	331.81	2,508.6	46.8	-61.7	14,243,266.25	1,766,721.39	39° 13' 21.059 N	80° 33' 14.483 W	
2,612.0	1.63	336.06	2,608.6	49.8	-63.2	14,243,269.25	1,766,719.91	39° 13' 21.089 N	80° 33' 14.501 W	
2,712.0	1.33	330.00	2,708.6	52.1	-64.4	14,243,271.56	1,766,718.75	39° 13' 21.112 N	80° 33' 14.516 W	
2,812.0	0.81	345.00	2,808.5	53.8	-65.1	14,243,273.25	1,766,717.98	39° 13' 21.128 N	80° 33' 14.525 W	
2,912.0	0.48	353.84	2,908.5	54.9	-65.3	14,243,274.35	1,766,717.76	39° 13' 21.139 N	80° 33' 14.528 W	
3,012.0	0.59	334.06	3,008.5	55.7	-65.6	14,243,275.23	1,766,717.49	39° 13' 21.148 N	80° 33' 14.532 W	
3,112.0	0.31	357.81	3,108.5	56.5	-65.9	14,243,275.96	1,766,717.25	39° 13' 21.155 N	80° 33' 14.535 W	
3,212.0	0.41	344.59	3,208.5	57.1	-66.0	14,243,276.57	1,766,717.15	39° 13' 21.161 N	80° 33' 14.536 W	
3,312.0	0.25	54.50	3,308.5	57.6	-65.9	14,243,277.05	1,766,717.23	39° 13' 21.166 N	80° 33' 14.535 W	
3,412.0	0.23	37.25	3,408.5	57.8	-65.6	14,243,277.33	1,766,717.53	39° 13' 21.169 N	80° 33' 14.531 W	
3,512.0	0.11	19.05	3,508.5	58.1	-65.4	14,243,277.58	1,766,717.68	39° 13' 21.171 N	80° 33' 14.529 W	
3,612.0	0.17	345.15	3,608.5	58.3	-65.4	14,243,277.82	1,766,717.67	39° 13' 21.173 N	80° 33' 14.529 W	
3,712.0	0.09	45.17	3,708.5	58.5	-65.4	14,243,278.02	1,766,717.69	39° 13' 21.175 N	80° 33' 14.529 W	
3,812.0	0.17	76.27	3,808.5	58.6	-65.2	14,243,278.11	1,766,717.89	39° 13' 21.176 N	80° 33' 14.526 W	
3,912.0	0.13	25.91	3,908.5	58.8	-65.0	14,243,278.24	1,766,718.08	39° 13' 21.178 N	80° 33' 14.524 W	
4,012.0	0.20	66.27	4,008.5	58.9	-64.8	14,243,278.42	1,766,718.29	39° 13' 21.179 N	80° 33' 14.521 W	
4,112.0	0.22	110.61	4,108.5	58.9	-64.5	14,243,278.42	1,766,718.63	39° 13' 21.179 N	80° 33' 14.517 W	
4,212.0	0.15	96.45	4,208.5	58.9	-64.2	14,243,278.34	1,766,718.94	39° 13' 21.179 N	80° 33' 14.513 W	
4,312.0	0.13	107.90	4,308.5	58.8	-63.9	14,243,278.29	1,766,719.18	39° 13' 21.178 N	80° 33' 14.510 W	
4,412.0	0.15	102.63	4,408.5	58.7	-63.7	14,243,278.22	1,766,719.42	39° 13' 21.177 N	80° 33' 14.507 W	
4,512.0	0.20	81.93	4,508.5	58.7	-63.4	14,243,278.22	1,766,719.72	39° 13' 21.177 N	80° 33' 14.503 W	
4,612.0	0.48	114.90	4,608.5	58.6	-62.8	14,243,278.07	1,766,720.27	39° 13' 21.176 N	80° 33' 14.496 W	
4,712.0	0.30	73.23	4,708.5	58.5	-62.2	14,243,277.97	1,766,720.90	39° 13' 21.175 N	80° 33' 14.488 W	
4,812.0	0.36	67.51	4,808.5	58.7	-61.7	14,243,278.16	1,766,721.44	39° 13' 21.177 N	80° 33' 14.481 W	
4,912.0	2.35	228.46	4,908.5	57.4	-62.9	14,243,276.92	1,766,720.20	39° 13' 21.165 N	80° 33' 14.497 W	
5,012.0	6.62	228.38	5,008.2	52.2	-68.8	14,243,271.73	1,766,714.35	39° 13' 21.113 N	80° 33' 14.572 W	
5,112.0	10.30	223.40	5,107.1	41.9	-79.2	14,243,261.40	1,766,703.90	39° 13' 21.012 N	80° 33' 14.705 W	
5,212.0	12.16	223.44	5,205.1	27.8	-92.6	14,243,247.26	1,766,690.51	39° 13' 20.873 N	80° 33' 14.876 W	
5,312.0	14.65	223.20	5,302.4	10.9	-108.5	14,243,230.39	1,766,674.61	39° 13' 20.707 N	80° 33' 15.079 W	
5,412.0	15.91	221.14	5,398.9	-8.6	-126.2	14,243,210.85	1,766,656.93	39° 13' 20.514 N	80° 33' 15.305 W	
5,512.0	15.35	210.59	5,495.2	-30.4	-141.9	14,243,189.13	1,766,641.18	39° 13' 20.300 N	80° 33' 15.507 W	
5,612.0	14.47	211.19	5,591.8	-52.4	-155.1	14,243,167.05	1,766,627.97	39° 13' 20.083 N	80° 33' 15.676 W	
5,712.0	17.76	208.39	5,687.9	-76.5	-168.9	14,243,142.93	1,766,614.25	39° 13' 19.845 N	80° 33' 15.852 W	
5,812.0	19.45	203.20	5,782.7	-105.3	-182.7	14,243,114.21	1,766,600.43	39° 13' 19.562 N	80° 33' 16.030 W	
5,912.0	20.26	206.92	5,876.7	-136.0	-197.1	14,243,083.47	1,766,586.03	39° 13' 19.258 N	80° 33' 16.215 W	
6,012.0	20.29	207.72	5,970.5	-166.8	-213.0	14,243,052.68	1,766,570.13	39° 13' 18.955 N	80° 33' 16.419 W	
6,112.0	20.98	207.34	6,064.1	-198.1	-229.3	14,243,021.43	1,766,553.84	39° 13' 18.646 N	80° 33' 16.628 W	



Scientific Drilling International  
Survey Report - Geographic



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Truman Unit 2H
<b>Project:</b>	Harrison County West Virginia	<b>TVD Reference:</b>	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
<b>Site:</b>	Cleta / Opie / Maude Pad	<b>MD Reference:</b>	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
<b>Well:</b>	Truman Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
6,212.0	22.48	207.18	6,157.0	-231.0	-246.2	14,242,988.52	1,766,536.89	39° 13' 18.322 N	80° 33' 16.845 W
6,312.0	25.23	203.15	6,248.4	-267.6	-263.3	14,242,951.91	1,766,519.77	39° 13' 17.961 N	80° 33' 17.065 W
6,412.0	23.11	201.31	6,339.7	-305.5	-278.8	14,242,914.02	1,766,504.26	39° 13' 17.587 N	80° 33' 17.265 W
6,512.0	20.96	201.34	6,432.4	-340.4	-292.5	14,242,879.07	1,766,490.62	39° 13' 17.242 N	80° 33' 17.440 W
6,612.0	20.55	202.80	6,525.9	-373.2	-305.8	14,242,846.23	1,766,477.31	39° 13' 16.918 N	80° 33' 17.611 W
6,712.0	20.18	202.79	6,619.6	-405.3	-319.3	14,242,814.15	1,766,463.82	39° 13' 16.601 N	80° 33' 17.785 W
6,716.0	20.11	203.07	6,623.4	-406.6	-319.8	14,242,812.88	1,766,463.29	39° 13' 16.589 N	80° 33' 17.792 W
6,832.0	18.08	211.43	6,733.0	-440.3	-337.0	14,242,779.17	1,766,446.08	39° 13' 16.256 N	80° 33' 18.012 W
6,891.0	19.94	210.21	6,788.8	-456.8	-346.9	14,242,762.66	1,766,436.24	39° 13' 16.094 N	80° 33' 18.139 W
6,921.0	23.31	209.18	6,816.7	-466.4	-352.3	14,242,753.06	1,766,430.78	39° 13' 15.999 N	80° 33' 18.209 W
<b>Sycamore</b>									
6,922.0	23.42	209.15	6,817.6	-466.8	-352.5	14,242,752.71	1,766,430.58	39° 13' 15.995 N	80° 33' 18.211 W
6,953.0	27.55	208.03	6,845.6	-478.5	-358.9	14,242,741.00	1,766,424.21	39° 13' 15.880 N	80° 33' 18.293 W
6,985.0	31.44	205.99	6,873.4	-492.5	-366.0	14,242,726.96	1,766,417.07	39° 13' 15.741 N	80° 33' 18.384 W
7,016.0	34.95	202.89	6,899.4	-508.0	-373.0	14,242,711.50	1,766,410.07	39° 13' 15.589 N	80° 33' 18.474 W
7,048.0	37.06	201.26	6,925.2	-525.4	-380.1	14,242,694.07	1,766,403.01	39° 13' 15.417 N	80° 33' 18.565 W
7,079.0	38.10	200.47	6,949.8	-543.1	-386.8	14,242,676.40	1,766,396.28	39° 13' 15.243 N	80° 33' 18.652 W
7,110.0	37.25	205.21	6,974.4	-560.5	-394.2	14,242,658.95	1,766,388.93	39° 13' 15.070 N	80° 33' 18.746 W
7,142.0	35.70	213.45	7,000.1	-577.1	-403.4	14,242,642.39	1,766,379.66	39° 13' 14.907 N	80° 33' 18.865 W
7,173.0	34.78	222.47	7,025.4	-591.2	-414.4	14,242,628.31	1,766,368.69	39° 13' 14.768 N	80° 33' 19.006 W
7,189.0	34.87	227.24	7,038.6	-597.6	-420.9	14,242,621.84	1,766,362.25	39° 13' 14.705 N	80° 33' 19.088 W
<b>Middlesex</b>									
7,204.0	35.13	231.68	7,050.9	-603.2	-427.4	14,242,616.25	1,766,355.72	39° 13' 14.650 N	80° 33' 19.171 W
7,236.0	35.74	235.59	7,076.9	-614.2	-442.3	14,242,605.26	1,766,340.78	39° 13' 14.542 N	80° 33' 19.362 W
7,267.0	36.60	239.82	7,102.0	-624.0	-457.8	14,242,595.49	1,766,325.32	39° 13' 14.446 N	80° 33' 19.559 W
7,299.0	37.55	244.09	7,127.5	-633.0	-474.8	14,242,586.43	1,766,308.30	39° 13' 14.357 N	80° 33' 19.776 W
7,330.0	39.04	248.85	7,151.8	-640.7	-492.4	14,242,578.78	1,766,290.69	39° 13' 14.282 N	80° 33' 20.000 W
7,362.0	40.30	253.01	7,176.5	-647.4	-511.7	14,242,572.12	1,766,271.39	39° 13' 14.218 N	80° 33' 20.246 W
7,372.0	40.76	254.61	7,184.1	-649.2	-518.0	14,242,570.31	1,766,265.15	39° 13' 14.200 N	80° 33' 20.325 W
<b>Burkett</b>									
7,393.0	41.79	257.88	7,199.9	-652.5	-531.4	14,242,567.02	1,766,251.70	39° 13' 14.168 N	80° 33' 20.496 W
7,408.0	42.75	259.93	7,211.0	-654.4	-541.3	14,242,565.08	1,766,241.80	39° 13' 14.149 N	80° 33' 20.622 W
<b>Tully</b>									
7,424.0	43.82	262.04	7,222.6	-656.1	-552.1	14,242,563.36	1,766,230.97	39° 13' 14.133 N	80° 33' 20.760 W
7,455.0	46.66	266.82	7,244.4	-658.2	-574.0	14,242,561.25	1,766,209.07	39° 13' 14.113 N	80° 33' 21.039 W
7,487.0	49.88	272.53	7,265.7	-658.3	-597.9	14,242,561.14	1,766,185.21	39° 13' 14.113 N	80° 33' 21.342 W
7,518.0	53.25	277.14	7,285.0	-656.3	-622.1	14,242,563.21	1,766,161.03	39° 13' 14.135 N	80° 33' 21.649 W
7,550.0	56.13	280.74	7,303.5	-652.2	-647.9	14,242,567.28	1,766,135.25	39° 13' 14.176 N	80° 33' 21.977 W
7,575.0	58.32	283.57	7,317.1	-647.8	-668.4	14,242,571.71	1,766,114.71	39° 13' 14.221 N	80° 33' 22.237 W
<b>Hamilton</b>									
7,581.0	58.85	284.23	7,320.2	-646.5	-673.4	14,242,572.95	1,766,109.74	39° 13' 14.234 N	80° 33' 22.301 W
7,612.0	63.30	287.54	7,335.2	-639.1	-699.5	14,242,580.38	1,766,083.66	39° 13' 14.308 N	80° 33' 22.632 W
7,644.0	67.84	290.44	7,348.4	-629.6	-727.0	14,242,589.87	1,766,056.12	39° 13' 14.404 N	80° 33' 22.981 W
7,675.0	69.52	290.71	7,359.7	-619.5	-754.0	14,242,600.02	1,766,029.09	39° 13' 14.505 N	80° 33' 23.324 W
7,707.0	71.06	291.78	7,370.5	-608.5	-782.1	14,242,610.94	1,766,001.01	39° 13' 14.615 N	80° 33' 23.680 W
7,728.0	71.74	293.18	7,377.2	-600.9	-800.5	14,242,618.55	1,765,982.62	39° 13' 14.691 N	80° 33' 23.913 W
<b>Marcellus</b>									
7,738.0	72.06	293.84	7,380.3	-597.1	-809.2	14,242,622.34	1,765,973.90	39° 13' 14.729 N	80° 33' 24.024 W
7,770.0	73.93	298.11	7,389.6	-583.7	-836.7	14,242,635.74	1,765,946.41	39° 13' 14.862 N	80° 33' 24.373 W
7,801.0	76.15	302.16	7,397.6	-568.7	-862.6	14,242,650.78	1,765,920.51	39° 13' 15.012 N	80° 33' 24.701 W
7,832.0	78.51	304.62	7,404.4	-552.1	-887.8	14,242,667.43	1,765,895.27	39° 13' 15.178 N	80° 33' 25.021 W
7,864.0	83.23	306.81	7,409.5	-533.6	-913.5	14,242,685.87	1,765,869.63	39° 13' 15.362 N	80° 33' 25.346 W



Scientific Drilling International  
Survey Report - Geographic



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Truman Unit 2H
<b>Project:</b>	Harrison County West Virginia	<b>TVD Reference:</b>	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
<b>Site:</b>	Cleta / Opie / Maude Pad	<b>MD Reference:</b>	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
<b>Well:</b>	Truman Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
7,883.0	84.47	306.86	7,411.6	-522.3	-928.6	14,242,697.19	1,765,854.51	39° 13' 15.474 N	80° 33' 25.537 W	
7,977.0	86.55	306.71	7,418.9	-466.2	-1,003.6	14,242,753.30	1,765,779.46	39° 13' 16.033 N	80° 33' 26.487 W	
8,071.0	88.59	306.45	7,422.9	-410.2	-1,079.1	14,242,809.27	1,765,704.05	39° 13' 16.590 N	80° 33' 27.443 W	
8,166.0	89.73	308.92	7,424.3	-352.2	-1,154.2	14,242,867.33	1,765,628.88	39° 13' 17.168 N	80° 33' 28.394 W	
8,260.0	89.36	308.69	7,425.0	-293.2	-1,227.5	14,242,926.24	1,765,555.63	39° 13' 17.754 N	80° 33' 29.322 W	
8,354.0	90.37	308.38	7,425.3	-234.7	-1,301.0	14,242,984.80	1,765,482.10	39° 13' 18.336 N	80° 33' 30.253 W	
8,448.0	90.80	310.13	7,424.3	-175.2	-1,373.8	14,243,044.27	1,765,409.32	39° 13' 18.928 N	80° 33' 31.174 W	
8,543.0	89.53	309.50	7,424.0	-114.4	-1,446.8	14,243,105.10	1,765,336.35	39° 13' 19.533 N	80° 33' 32.098 W	
8,637.0	89.13	308.77	7,425.1	-55.1	-1,519.7	14,243,164.42	1,765,263.44	39° 13' 20.123 N	80° 33' 33.021 W	
8,731.0	88.59	307.57	7,427.0	3.0	-1,593.5	14,243,222.50	1,765,189.56	39° 13' 20.700 N	80° 33' 33.957 W	
8,825.0	88.89	306.77	7,429.1	59.8	-1,668.4	14,243,279.28	1,765,114.68	39° 13' 21.265 N	80° 33' 34.905 W	
8,919.0	87.55	307.79	7,432.0	116.7	-1,743.2	14,243,336.19	1,765,039.92	39° 13' 21.832 N	80° 33' 35.852 W	
9,013.0	86.91	308.26	7,436.5	174.5	-1,817.1	14,243,394.02	1,764,965.96	39° 13' 22.407 N	80° 33' 36.788 W	
9,108.0	87.45	309.40	7,441.2	234.0	-1,891.1	14,243,453.52	1,764,892.04	39° 13' 22.999 N	80° 33' 37.724 W	
9,202.0	88.63	309.84	7,444.4	293.9	-1,963.4	14,243,513.42	1,764,819.68	39° 13' 23.595 N	80° 33' 38.640 W	
9,292.0	89.03	307.85	7,446.3	350.4	-2,033.5	14,243,569.86	1,764,749.60	39° 13' 24.156 N	80° 33' 39.527 W	
9,383.0	88.93	310.53	7,447.9	407.9	-2,104.0	14,243,627.35	1,764,679.09	39° 13' 24.728 N	80° 33' 40.420 W	
9,474.0	88.99	311.69	7,449.5	467.7	-2,172.6	14,243,687.17	1,764,610.54	39° 13' 25.323 N	80° 33' 41.288 W	
9,567.0	89.97	310.94	7,450.4	529.1	-2,242.4	14,243,748.56	1,764,540.69	39° 13' 25.933 N	80° 33' 42.172 W	
9,659.0	89.40	310.08	7,450.9	588.8	-2,312.4	14,243,808.32	1,764,470.75	39° 13' 26.527 N	80° 33' 43.057 W	
9,752.0	88.99	307.39	7,452.2	647.0	-2,384.9	14,243,866.50	1,764,398.22	39° 13' 27.106 N	80° 33' 43.976 W	
9,844.0	89.63	308.38	7,453.3	703.5	-2,457.5	14,243,923.00	1,764,325.61	39° 13' 27.668 N	80° 33' 44.895 W	
9,937.0	89.83	309.31	7,453.7	761.8	-2,529.9	14,243,981.32	1,764,253.18	39° 13' 28.248 N	80° 33' 45.812 W	
10,029.0	88.29	308.93	7,455.2	819.9	-2,601.3	14,244,039.36	1,764,181.82	39° 13' 28.825 N	80° 33' 46.716 W	
10,121.0	88.06	309.54	7,458.2	878.0	-2,672.5	14,244,097.52	1,764,110.59	39° 13' 29.404 N	80° 33' 47.618 W	
10,213.0	88.49	310.58	7,460.9	937.2	-2,742.9	14,244,156.71	1,764,040.21	39° 13' 29.992 N	80° 33' 48.509 W	
10,305.0	88.52	309.47	7,463.3	996.4	-2,813.3	14,244,215.85	1,763,969.79	39° 13' 30.581 N	80° 33' 49.400 W	
10,399.0	88.80	308.07	7,465.5	1,055.2	-2,886.6	14,244,274.70	1,763,896.52	39° 13' 31.166 N	80° 33' 50.328 W	
10,493.0	89.03	307.11	7,467.3	1,112.5	-2,961.1	14,244,332.03	1,763,822.05	39° 13' 31.736 N	80° 33' 51.271 W	
10,587.0	90.80	307.39	7,467.5	1,169.4	-3,035.9	14,244,388.92	1,763,747.23	39° 13' 32.302 N	80° 33' 52.219 W	
10,681.0	90.90	306.86	7,466.1	1,226.2	-3,110.8	14,244,445.65	1,763,672.29	39° 13' 32.867 N	80° 33' 53.168 W	
10,776.0	90.87	306.62	7,464.6	1,283.0	-3,186.9	14,244,502.47	1,763,596.17	39° 13' 33.432 N	80° 33' 54.132 W	
10,870.0	89.90	307.79	7,464.0	1,339.8	-3,261.8	14,244,559.31	1,763,521.31	39° 13' 33.998 N	80° 33' 55.080 W	
10,964.0	89.63	303.84	7,464.3	1,394.8	-3,338.0	14,244,614.30	1,763,445.10	39° 13' 34.545 N	80° 33' 56.046 W	
11,058.0	88.82	305.69	7,465.6	1,448.4	-3,415.2	14,244,667.89	1,763,367.89	39° 13' 35.079 N	80° 33' 57.024 W	
11,152.0	88.29	307.25	7,468.0	1,504.3	-3,490.8	14,244,723.75	1,763,292.32	39° 13' 35.635 N	80° 33' 57.981 W	
11,246.0	89.13	309.99	7,470.1	1,562.9	-3,564.2	14,244,782.40	1,763,218.90	39° 13' 36.218 N	80° 33' 58.911 W	
11,340.0	88.56	310.43	7,472.0	1,623.6	-3,636.0	14,244,843.07	1,763,147.13	39° 13' 36.821 N	80° 33' 59.819 W	
11,434.0	88.52	310.50	7,474.4	1,684.6	-3,707.5	14,244,904.05	1,763,075.64	39° 13' 37.428 N	80° 34' 0.725 W	
11,528.0	88.83	310.01	7,476.6	1,745.3	-3,779.2	14,244,964.78	1,763,003.92	39° 13' 38.031 N	80° 34' 1.633 W	
11,623.0	88.39	310.19	7,478.9	1,806.5	-3,851.8	14,245,025.95	1,762,931.28	39° 13' 38.640 N	80° 34' 2.552 W	
11,717.0	87.89	309.37	7,481.9	1,866.6	-3,924.0	14,245,086.06	1,762,859.08	39° 13' 39.237 N	80° 34' 3.467 W	
11,811.0	88.32	310.59	7,485.0	1,926.9	-3,996.0	14,245,146.43	1,762,787.09	39° 13' 39.838 N	80° 34' 4.378 W	
11,905.0	88.59	308.27	7,487.6	1,986.6	-4,068.6	14,245,206.10	1,762,714.51	39° 13' 40.431 N	80° 34' 5.297 W	
11,999.0	89.46	308.21	7,489.2	2,044.8	-4,142.4	14,245,264.28	1,762,640.69	39° 13' 41.010 N	80° 34' 6.232 W	
12,093.0	89.83	308.01	7,489.8	2,102.8	-4,216.4	14,245,322.29	1,762,566.73	39° 13' 41.587 N	80° 34' 7.168 W	
12,187.0	89.80	307.78	7,490.1	2,160.5	-4,290.6	14,245,380.03	1,762,492.56	39° 13' 42.161 N	80° 34' 8.108 W	
12,282.0	90.54	308.88	7,489.8	2,219.5	-4,365.1	14,245,438.94	1,762,418.03	39° 13' 42.747 N	80° 34' 9.052 W	
12,376.0	91.01	308.98	7,488.5	2,278.5	-4,438.2	14,245,498.00	1,762,344.92	39° 13' 43.335 N	80° 34' 9.978 W	
12,470.0	89.87	308.02	7,487.8	2,337.0	-4,511.7	14,245,556.52	1,762,271.36	39° 13' 43.917 N	80° 34' 10.909 W	
12,564.0	88.62	309.11	7,489.0	2,395.6	-4,585.2	14,245,615.11	1,762,197.87	39° 13' 44.500 N	80° 34' 11.840 W	
12,658.0	88.59	309.36	7,491.3	2,455.1	-4,658.0	14,245,674.55	1,762,125.08	39° 13' 45.091 N	80° 34' 12.762 W	
12,752.0	88.69	308.13	7,493.5	2,513.9	-4,731.3	14,245,733.36	1,762,051.79	39° 13' 45.676 N	80° 34' 13.690 W	



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Truman Unit 2H
<b>Project:</b>	Harrison County West Virginia	<b>TVD Reference:</b>	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
<b>Site:</b>	Cleta / Opie / Maude Pad	<b>MD Reference:</b>	Patterson: Truman 2H 1405 GL + 25 KB @ 1430.0usft
<b>Well:</b>	Truman Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
12,846.0	87.82	306.78	7,496.4	2,571.0	-4,805.9	14,245,790.50	1,761,977.20	39° 13' 46.244 N	80° 34' 14.634 W
12,940.0	87.48	306.98	7,500.3	2,627.4	-4,881.0	14,245,846.86	1,761,902.08	39° 13' 46.805 N	80° 34' 15.586 W
13,034.0	88.46	308.25	7,503.6	2,684.7	-4,955.4	14,245,904.20	1,761,827.67	39° 13' 47.375 N	80° 34' 16.529 W
13,128.0	88.79	305.42	7,505.8	2,741.0	-5,030.6	14,245,960.53	1,761,752.46	39° 13' 47.936 N	80° 34' 17.481 W
13,222.0	88.79	305.55	7,507.8	2,795.6	-5,107.2	14,246,015.08	1,761,675.94	39° 13' 48.479 N	80° 34' 18.451 W
13,316.0	88.46	308.41	7,510.1	2,852.1	-5,182.2	14,246,071.61	1,761,600.88	39° 13' 49.041 N	80° 34' 19.402 W
13,410.0	87.89	309.13	7,513.1	2,911.0	-5,255.5	14,246,130.44	1,761,527.63	39° 13' 49.626 N	80° 34' 20.329 W
13,504.0	88.25	310.00	7,516.2	2,970.8	-5,327.9	14,246,190.28	1,761,455.20	39° 13' 50.221 N	80° 34' 21.246 W
13,598.0	88.15	309.90	7,519.2	3,031.1	-5,399.9	14,246,250.61	1,761,383.18	39° 13' 50.821 N	80° 34' 22.158 W
13,692.0	88.89	309.68	7,521.6	3,091.3	-5,472.1	14,246,310.74	1,761,310.97	39° 13' 51.419 N	80° 34' 23.073 W
13,787.0	89.40	310.32	7,523.0	3,152.3	-5,544.9	14,246,371.80	1,761,238.21	39° 13' 52.026 N	80° 34' 23.994 W
13,881.0	90.17	309.65	7,523.4	3,212.7	-5,616.9	14,246,432.20	1,761,166.18	39° 13' 52.627 N	80° 34' 24.906 W
13,975.0	90.97	308.87	7,522.5	3,272.2	-5,689.7	14,246,491.69	1,761,093.41	39° 13' 53.218 N	80° 34' 25.828 W
14,069.0	89.87	309.94	7,521.8	3,331.9	-5,762.3	14,246,551.35	1,761,020.78	39° 13' 53.812 N	80° 34' 26.747 W
14,164.0	91.81	310.23	7,520.4	3,393.0	-5,835.0	14,246,612.52	1,760,948.11	39° 13' 54.420 N	80° 34' 27.668 W
14,258.0	92.59	310.75	7,516.8	3,454.0	-5,906.4	14,246,673.51	1,760,876.67	39° 13' 55.026 N	80° 34' 28.572 W
14,351.0	92.72	310.95	7,512.5	3,514.8	-5,976.7	14,246,734.27	1,760,806.40	39° 13' 55.630 N	80° 34' 29.462 W
14,446.0	93.02	310.53	7,507.7	3,576.7	-6,048.6	14,246,796.19	1,760,734.51	39° 13' 56.246 N	80° 34' 30.372 W
14,540.0	92.18	309.19	7,503.4	3,636.9	-6,120.7	14,246,856.37	1,760,662.43	39° 13' 56.844 N	80° 34' 31.285 W
14,634.0	92.48	308.47	7,499.6	3,695.8	-6,193.8	14,246,915.26	1,760,589.27	39° 13' 57.430 N	80° 34' 32.212 W
14,693.0	92.48	308.47	7,497.1	3,732.5	-6,240.0	14,246,951.93	1,760,543.12	39° 13' 57.795 N	80° 34' 32.796 W
14,709.0	92.42	307.34	7,496.4	3,742.3	-6,252.6	14,246,961.75	1,760,530.50	39° 13' 57.892 N	80° 34' 32.956 W
14,768.0	92.42	307.34	7,493.9	3,778.0	-6,299.5	14,246,997.51	1,760,483.64	39° 13' 58.248 N	80° 34' 33.549 W

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,921.0	6,816.7	Sycamore		0.00	
7,189.0	7,038.6	Middlesex		0.00	
7,372.0	7,184.1	Burkett		0.00	
7,408.0	7,211.0	Tully		0.00	
7,575.0	7,317.1	Hamilton		0.00	
7,728.0	7,377.2	Marcellus		0.00	

Checked By: _____	Approved By: _____	Date: _____
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## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/20/2017
Job End Date:	9/8/2017
State:	West Virginia
County:	Harrison
API Number:	47-033-05715-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Truman 2H
Latitude:	39.22238611
Longitude:	-80.55380556
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,523
Total Base Water Volume (gal):	12,628,410
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	Antero Resources	Carrier/Base Fluid	Water	7732-18-5	100.00000	87.97550	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	11.81493	
HCL Acid (12.6%-17.5%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.40000	0.11557	
			Hydrogen Chloride	7647-01-0	17.50000	0.02687	
WFRA-405	U.S. Well Services, LLC	Friction Reducer	2-Propenoic acid, polymer with 2-propenamide	9003-06-9	30.00000	0.01894	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01525	
LGC-15	U.S. Well Services, LLC	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.01174	
			Petroleum Distillates	64742-47-8	60.00000	0.01112	
			Suspending agent (solid)	14808-60-7	3.00000	0.00180	
			Surfactant	68439-51-0	3.00000	0.00070	

Bioclear 2000	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00415	
			Deionized Water	7732-18-5	28.00000	0.00237	
SI-1200s	U.S. Well Services, LLC	Scale Inhibitor					
			Alkyl Phosphonic Acid	Proprietary	5.00000	0.00062	
			Ammonia	7664-41-7	0.50000	0.00010	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00023	
AI-303	U.S. Well Services, LLC	Acid Corrosion Inhibitors					
			Ethylene glycol	107-21-1	40.00000	0.00004	
			Cinnamaldehyde	104-55-2	20.00000	0.00002	
			Formic acid	64-18-6	20.00000	0.00002	
			Butyl cellosolve	111-76-2	20.00000	0.00001	
			Polyether	60828-78-6	10.00000	0.00001	
			Acetophenone,thiourea,formaldehyde polymer	68527-49-1	5.00000	0.00000	

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

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)

WELL OPERATOR: Antero Resources Corporation  
 ADDRESS: 1615 Wynkoop Street  
 Denver, CO 80202

DESIGNATED AGENT: Diana Stamper - CT Corporation System  
 ADDRESS: 5400 D Big Tyler Road  
 Charleston, WV 25313

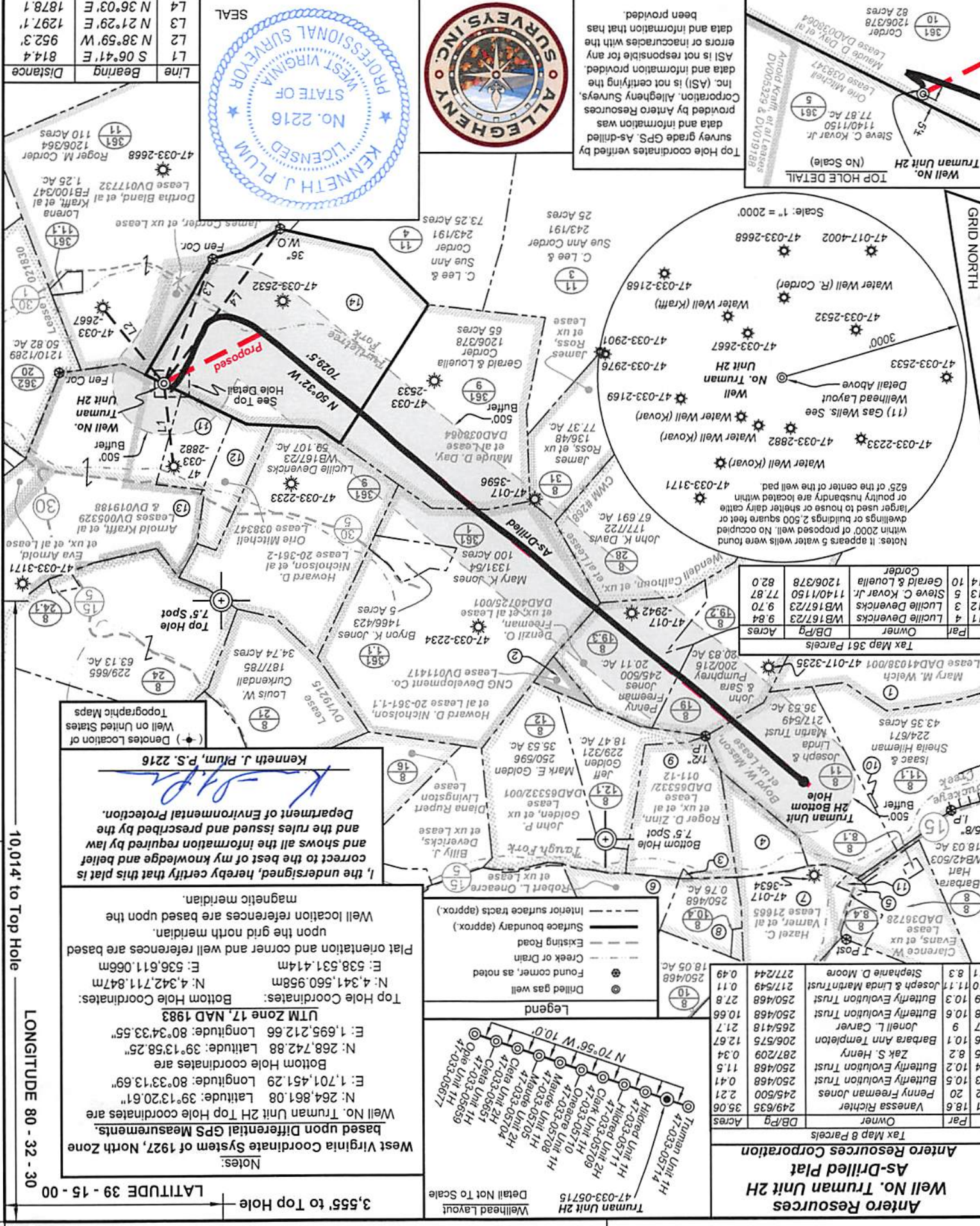
WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION: As-Built Grade - 1405' WATERSHED: Tenmile Creek QUADRANGLE: Big Isaac  
 DISTRICT: Union  
 SURFACE OWNER: Gerald & Louella Corder  
 Royalty Owner: Maude D. Day, et al; Denzil O. Freeman, et ux, et al  
 LEASE NO: DAD038064  
 ACREAGE: 82  
 ACREAGE: 147; 165; 76; 89  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled  
 TARGET FORMATION: Marcellus Shale  
 DEPTH: MD 14,768'

STATE OF WEST VIRGINIA  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS

FILE NO: 233-30-G-12  
 DRAWING NO: 233-12 Truman Drilled 2H  
 SCALE: 1" = 1200'  
 MINIMUM DEGREE OF ACCURACY:  
 Submeter  
 PROVEN SOURCE OF ELEVATION:  
 WVDOT, Bridgeport, WV

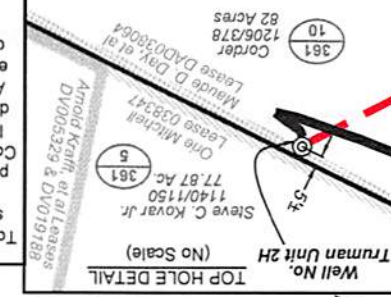
DATE: October 19, 2017  
 OPERATORS WELL NO. Truman Unit 2H  
 SEAL  
 API WELL NO:  
 STATE 47 COUNTY 033 PERMIT 05715



Line	Bearing	Distance
L1	S 06°41' E	814.4
L2	N 38°59' W	952.3
L3	N 21°29' E	1297.1
L4	N 36°03' E	1878.1



Top Hole coordinates verified by survey grade GPS. As-drilled data and information was provided by Antero Resources Corporation, Allegany Surveys, Inc. (AS) is not certifying the data and information that has errors or inaccuracies with the AS. It is not responsible for any data and information that has been provided.



Parcel	Owner	DB/Pg	Acres
11	Lucille Devencks	WB167/23	9.84
12	Lucille Devencks	WB167/23	9.70
13	Steve C. Kovar Jr.	1140/150	77.87
14	Gerald & Louella Corder	1206/378	82.0

**West Virginia Coordinate System of 1927, North Zone**  
 based upon Differential GPS Measurements.  
 Well No. Truman Unit 2H Top Hole coordinates are  
 N: 264,861.08 Latitude: 39°13'20.61"  
 E: 1,701,451.29 Longitude: 80°33'13.69"  
 Bottom Hole coordinates are  
 N: 268,742.88 Latitude: 39°13'58.25"  
 E: 1,695,212.66 Longitude: 80°34'33.55"  
 UTM Zone 17, NAD 1983  
 Top Hole Coordinates: N: 4,342,711.847m E: 536,611.066m  
 Bottom Hole Coordinates: N: 4,341,560.958m E: 538,531.414m  
 Plat orientation and corner and well references are based upon the grid north meridian.  
 Well location references are based upon the magnetic meridian.

**Notes:**  
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.  
 Well No. Truman Unit 2H Top Hole coordinates are N: 264,861.08 Latitude: 39°13'20.61" E: 1,701,451.29 Longitude: 80°33'13.69"  
 Bottom Hole coordinates are N: 268,742.88 Latitude: 39°13'58.25" E: 1,695,212.66 Longitude: 80°34'33.55"  
 UTM Zone 17, NAD 1983  
 Top Hole Coordinates: N: 4,342,711.847m E: 536,611.066m  
 Bottom Hole Coordinates: N: 4,341,560.958m E: 538,531.414m  
 Plat orientation and corner and well references are based upon the grid north meridian.  
 Well location references are based upon the magnetic meridian.

**Legend**  
 Drilled gas well  
 Found corner, as noted  
 Creek or Drain  
 Existing Road  
 Surface boundary (approx.)  
 Interior surface tracts (approx.)

**Wellhead Layout**  
 Truman Unit 2H  
 47-033-05715  
 Detail Not To Scale

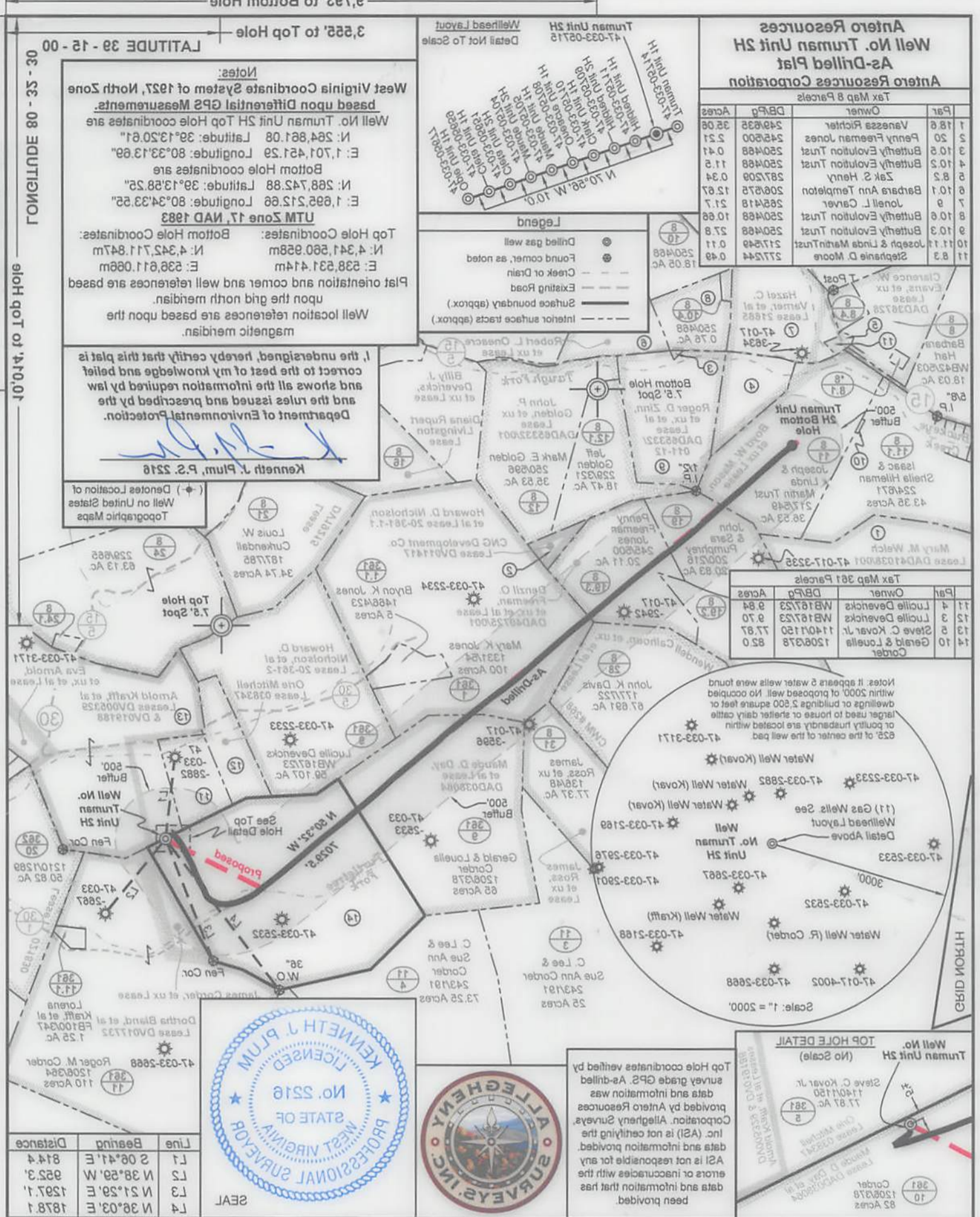
**Antero Resources Well No. Truman Unit 2H As-Drilled Plat**  
 Antero Resources Corporation  
 Tax Map 8 Parcels

Parcel	Owner	DB/Rg	Acres
1	Vanessa Richier	249/635	35.06
2	Penny Freeman Jones	245/500	2.21
3	Butterly Evolution Trust	250/468	0.41
4	Butterly Evolution Trust	250/468	11.5
5	Zak S. Henry	287/209	0.34
6	Barbara Ann Templeton	206/575	12.67
7	Jonell L. Carver	265/418	21.7
8	Butterly Evolution Trust	250/468	10.66
9	Butterly Evolution Trust	250/468	27.8
10	Butterly Evolution Trust	250/468	27.8
11	Joseph & Linda Martin Trust	217/549	0.11
12	Stephanie D. Moore	277/244	0.49

**GRID NORTH**  
 Scale: 1" = 2000'  
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STATE OF WEST VIRGINIA  
 DEPARTMENT OF ENVIRONMENTAL PROTECTION  
 OFFICE OF OIL AND GAS

DATE: October 19 2017  
 OPERATORS WELL NO. Truman Unit 2H  
 API WELL NO:  
 STATE COUNTY PERMIT

FILE NO: 233-30-G-12  
 DRAWING NO: 233-12 Truman Dilled 2H  
 SCALE: 1" = 1200'  
 MINIMUM DEGREE OF ACCURACY:  
 Submeter  
 PROVEN SOURCE OF ELEVATION:  
 WVDT, Bhdqpoth, WV

WELL OPERATOR: Antero Resources Corporation  
 ADDRESS: 1815 Wynkoop Street, Denver, CO 80202

DESIGNATED AGENT: Dianna Stamber - CT Corporation System  
 ADDRESS: 2400 D Big Tyler Road, Charleston, WV 25313

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION: As-Built Grade - 1405' WATERSHED: Tennille Creek QUADRANGLE: Big Isaac  
 DISTRICT: Union

SURFACE OWNER: Gerald & Louella Corber  
 ROYALTY OWNER: Mande D. Day, et al; Denizil O. Freeman, et ux, et al  
 LEASE NO: DAD038084 ACREAGE: 147.165; 76.89  
 DADA025001 20-361-1-1 ACREAGE: 82

PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Dilled  
 TVD: 7,494' DEPTH: MD 14,768'

Well location references are based upon the magnetic meridian.  
 upon the grid north meridian.  
 Plat orientation and corner and well references are based  
 Top Hole Coordinates: Bottom Hole Coordinates:  
 N: 4,342,711.847m E: 538,531.414m  
 N: 4,342,711.847m E: 538,531.414m