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WR-35  
Rev. 8/23/13

APR 22 2016

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WV GEOLOGICAL SURVEY  
MORGANTOWN, WV

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

API 47 - 017 - 06659 County Doddridge District Central  
Quad Oxford 7.5' Pad Name Fritz Pad Field/Pool Name ---  
Farm name Horton, Judy A. Well Number Hileman Unit 1H  
Operator (as registered with the OOG) Antero Resources Corporation  
Address 1615 Wynkoop St. 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 4342773m Easting 513810m  
Landing Point of Curve Northing 4342517.41m Easting 513842.10  
Bottom Hole Northing 4340110m Easting 515018m

Elevation (ft) 1053' 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 1/26/2015 Date drilling commenced 2/12/2015 Date drilling ceased 4/12/2015  
Date completion activities began 11/7/2015 Date completion activities ceased 2/20/2016  
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 97' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1143', 1529' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft 1429' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by:

\_\_\_\_\_

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API 47-017 - 06659 Farm name Horton, Judy A. Well number Hileman Unit 1H

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	30"	20"	40'	New	94# H-40	N/A	Y
Surface	17- 1/2"	13- 3/8"	358'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2525'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	15966'	New	23# P-110	N/A	Y
Tubing		2-3/8"	6698'		4.7# N-80	N/A	
Packer type and depth set		N/A					

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	100 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	428 sx	15.6	1.18	249	0'	8 Hrs.
Coal							
Intermediate 1	Class A	932 sx	15.6	1.18	791	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	993 sx (Lead) 1447 sx (Tail)	14.5 Lead 15.2 Tail	1.30 Lead 1.85 Tail	3194	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15966' MD, 6447' TVD (BHL), 6599' (Deepest Point Drilled) Loggers TD (ft) 15966'  
Deepest formation penetrated Marcellus Plug back to (ft) N/A  
Plug back procedure N/A

Kick off depth (ft) 5744'

\*\* This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Washington Unit 2H API #47-017-06371). Please reference the wireline logs submitted with Form WR-35 for Washington Unit 2H. A Cement Bond Log has been included with this submittal.

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 \_\_\_\_\_

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API 47- 017 - 06659 Farm name Horton, Judy A. Well number Hileman Unit 1H

### 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- 017 - 06659 Farm name Horton, Judy A. Well number Hileman Unit 1H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6545'(TOP) TVD	6771'(TOP) MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST -- hrs

OPEN FLOW Gas 9758 mcfpd Oil 195 bpd NGL --- bpd Water 564 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP		BOTTOM		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
	0		0		

**\*PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling LLC  
Address 562 Spring Run Rd. City Pennsboro State WV Zip 26415

Logging Company Rush Wellsite Services  
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

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

Stimulating Company US Well Services  
Address 533 Industrial Park Dr. City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Kara Quackenbush Telephone 303-357-7233  
Signature [Signature] Title Permit Representative Date 4/18/2016

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

## EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	7-Nov-15	15,746	15,874	60	Marcellus
2	22-Nov-15	15,595	15,723	60	Marcellus
3	22-Nov-15	15,443	15,571	60	Marcellus
4	22-Nov-15	15,292	15,420	60	Marcellus
5	22-Nov-15	15,141	15,269	60	Marcellus
6	23-Nov-15	14,989	15,117	60	Marcellus
7	23-Nov-15	14,838	14,966	60	Marcellus
8	23-Nov-15	14,687	14,815	60	Marcellus
9	23-Nov-15	14,535	14,663	60	Marcellus
10	24-Nov-15	14,384	14,512	60	Marcellus
11	24-Nov-15	14,232	14,361	60	Marcellus
12	24-Nov-15	14,081	14,209	60	Marcellus
13	24-Nov-15	13,930	14,058	60	Marcellus
14	25-Nov-15	13,778	13,907	60	Marcellus
15	25-Nov-15	13,627	13,755	60	Marcellus
16	27-Nov-15	13,476	13,604	60	Marcellus
17	27-Nov-15	13,324	13,453	60	Marcellus
18	27-Nov-15	13,173	13,301	60	Marcellus
19	28-Nov-15	13,022	13,150	60	Marcellus
20	28-Nov-15	12,870	12,998	60	Marcellus
21	28-Nov-15	12,719	12,847	60	Marcellus
22	28-Nov-15	12,568	12,696	60	Marcellus
23	28-Nov-15	12,416	12,544	60	Marcellus
24	12-Jan-16	12,265	12,393	60	Marcellus
25	12-Jan-16	12,114	12,242	60	Marcellus
26	13-Jan-16	11,962	12,090	60	Marcellus
27	13-Jan-16	11,811	11,939	60	Marcellus
28	13-Jan-16	11,660	11,788	60	Marcellus
29	14-Jan-16	11,508	11,636	60	Marcellus
30	14-Jan-16	11,357	11,485	60	Marcellus
31	14-Jan-16	11,205	11,334	60	Marcellus
32	14-Jan-16	11,054	11,182	60	Marcellus
33	14-Jan-16	10,903	11,031	60	Marcellus
34	15-Jan-16	10,751	10,880	60	Marcellus
35	15-Jan-16	10,600	10,728	60	Marcellus
36	15-Jan-16	10,449	10,577	60	Marcellus
37	15-Jan-16	10,297	10,425	60	Marcellus
38	16-Jan-16	10,146	10,274	60	Marcellus
39	16-Jan-16	9,995	10,123	60	Marcellus
40	16-Jan-16	9,843	9,971	60	Marcellus
41	16-Jan-16	9,692	9,820	60	Marcellus
42	16-Jan-16	9,541	9,669	60	Marcellus
43	17-Jan-16	9,389	9,517	60	Marcellus
44	17-Jan-16	9,238	9,366	60	Marcellus
45	17-Jan-16	9,087	9,215	60	Marcellus
46	17-Jan-16	8,935	9,063	60	Marcellus
47	17-Jan-16	8,784	8,912	60	Marcellus
48	18-Jan-16	8,633	8,761	60	Marcellus
49	18-Jan-16	8,481	8,609	60	Marcellus
50	18-Jan-16	8,330	8,458	60	Marcellus
51	18-Jan-16	8,178	8,307	60	Marcellus
52	19-Jan-16	8,027	8,155	60	Marcellus
53	19-Jan-16	7,876	8,004	60	Marcellus
54	19-Jan-16	7,724	7,853	60	Marcellus
55	19-Jan-16	7,573	7,701	60	Marcellus
56	20-Jan-16	7,422	7,550	60	Marcellus
57	20-Jan-16	7,270	7,398	60	Marcellus
58	20-Jan-16	7,119	7,247	60	Marcellus
59	24-Jan-16	6,968	7,096	60	Marcellus
60	25-Jan-16	6,816	6,944	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	21-Nov-15	67	7,147	0	3,852	192,160	6,369	N/A
2	22-Nov-15	65.6	7,125	5,984	4,324	234,725	6,161	N/A
3	22-Nov-15	64	7,145	6,110	4,450	234,300	6,365	N/A
4	22-Nov-15	64	7,283	6,917	3,367	232,380	6,165	N/A
5	22-Nov-15	65	7,289	7,057	3,819	202,460	6,553	N/A
6	23-Nov-15	65	7,374	6,632	4,734	170,160	5,951	N/A
7	23-Nov-15	65	7,293	5,902	3,584	234,600	6,138	N/A
8	23-Nov-15	66	7,273	6,743	3,150	236,740	6,114	N/A
9	23-Nov-15	67	7,559	6,399	5,091	165,670	6,281	N/A
10	24-Nov-15	73	7,421	6,442	4,472	210,520	6,565	N/A
11	24-Nov-15	63	7,110	5,803	4,775	188,100	6,470	N/A
12	24-Nov-15	72	7,618	5,772	4,127	118,700	6,407	N/A
13	24-Nov-15	74	7,295	6,087	3,482	235,840	6,284	N/A
14	25-Nov-15	72	7,632	6,604	2,968	235,970	6,225	N/A
15	25-Nov-15	73	7,544	6,033	4,176	212,350	5,802	N/A
16	27-Nov-15	71	7,315	5,707	3,340	234,350	5,996	N/A
17	27-Nov-15	71	7,278	6,012	2,807	237,140	6,084	N/A
18	27-Nov-15	73	7,404	5,902	3,909	186,960	6,503	N/A
19	28-Nov-15	69	7,232	6,101	2,815	234,660	6,022	N/A
20	28-Nov-15	69	7,012	6,638	2,965	234,600	5,924	N/A
21	28-Nov-15	69	7,036	6,258	2,972	233,900	5,901	N/A
22	28-Nov-15	70	6,807	6,838	3,098	235,150	5,936	N/A
23	28-Nov-15	68	7,243	7,052	6,970	233,890	6,149	N/A
24	12-Jan-16	72	7,109	6,007	4,283	221,310	5,873	N/A
25	12-Jan-16	72	7,342	6,781	3,669	202,230	6,711	N/A
26	13-Jan-16	62	7,769	6,474	4,041	201,630	6,590	N/A
27	13-Jan-16	43	8,682	6,572	4,309	3,800	5,869	N/A
28	13-Jan-16	72	7,426	6,447	4,775	184,840	6,317	N/A
29	14-Jan-16	70	7,341	6,299	4,677	197,036	6,484	N/A
30	14-Jan-16	65	7,359	6,718	4,514	210,728	6,665	N/A
31	14-Jan-16	72	7,433	6,129	5,381	200,018	5,913	N/A
32	14-Jan-16	70	6,925	5,769	4,565	230,970	5,840	N/A
33	14-Jan-16	70	7,029	6,478	4,320	230,610	5,811	N/A
34	15-Jan-16	72	6,721	5,834	5,198	229,690	5,793	N/A
35	15-Jan-16	72	6,672	6,099	5,038	229,780	5,783	N/A
36	15-Jan-16	72	6,637	5,909	4,789	229,410	5,768	N/A
37	15-Jan-16	71	6,826	6,645	4,784	230,920	5,762	N/A
38	16-Jan-16	71	6,769	6,387	4,396	230,640	5,745	N/A
39	16-Jan-16	72	6,659	5,911	5,130	232,270	5,744	N/A
40	16-Jan-16	72	6,592	5,468	4,901	232,030	5,737	N/A
41	16-Jan-16	72	6,676	6,367	4,533	232,120	5,728	N/A
42	16-Jan-16	73	6,506	5,317	4,967	231,540	5,707	N/A
43	17-Jan-16	71	6,570	6,122	4,262	231,430	5,707	N/A
44	17-Jan-16	72	6,483	5,370	5,393	227,760	5,697	N/A
45	17-Jan-16	72	6,609	5,928	4,801	231,860	5,687	N/A
46	17-Jan-16	72	6,314	5,378	4,737	230,820	5,673	N/A
47	17-Jan-16	71	6,642	6,040	4,086	231,600	5,687	N/A
48	18-Jan-16	73	6,563	5,391	4,518	231,690	5,648	N/A
49	18-Jan-16	71	6,740	6,017	5,403	233,759	6,159	N/A
50	18-Jan-16	71	6,600	6,586	5,105	233,080	5,672	N/A
51	18-Jan-16	71	6,590	5,799	5,010	233,500	5,617	N/A
52	19-Jan-16	71	6,813	5,731	4,861	233,400	5,630	N/A
53	19-Jan-16	72.0	6,670	5,654	4,948	232,150	5,623	N/A
54	19-Jan-16	72.0	6,563	6,005	5,449	232,950	5,598	N/A
55	19-Jan-16	73.0	6,480	5,887	5,068	233,350	5,583	N/A
56	20-Jan-16	71.0	6,617	5,646	4,600	232,950	5,591	N/A
57	20-Jan-16	72.0	6,618	5,800	5,828	233,461	5,568	N/A
58	20-Jan-16	72.0	6,356	5,432	5,118	232,780	5,558	N/A
59	24-Jan-16	57.0	7,162	7,032	5,156	117,350	6,185	N/A
60	25-Jan-16	70.0	6,262	5,742	3,877	235,630	5,616	N/A
AVG=		<b>69.4</b>	<b>7,009</b>	<b>6,036</b>	<b>4,429</b>	<b>12,966,417</b>	<b>5,978</b>	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
Fresh Water	97'	N/A	97'	N/A
Siltstone/Sandstone	0	109	0	109
Shale/ Siltstone	est. 109	169	est. 109	169
Siltstone/ Trace Coal	est. 169	329	est. 169	329
Siltstone/ Shale	est. 329	429	est. 329	429
Shale	est. 429	509	est. 429	509
Sandstone	est. 509	549	est. 509	549
Shale/ Siltstone	est. 549	629	est. 549	629
Limestone/ Shale	est. 629	689	est. 629	689
Shale/ Siltstone	est. 689	829	est. 689	829
Shale/ Limestone	est. 829	909	est. 829	909
Sandstone	est. 909	969	est. 909	969
Shale	est. 969	1089	est. 969	1089
Siltstone/ Trace Coal	est. 1089	1429	est. 1089	1429
Coal	est. 1429	1549	est. 1429	1549
Siltstone/ Trace Coal	est. 1549	1689	est. 1549	1689
Shale/ Siltstone	est. 1689	1909	est. 1689	1909
Sandstone	est. 1909	1970	est. 1909	1972
Big Lime	1970	2627	1972	2629
Fifty Foot Sandstone	2627	2698	2629	2700
Gordon	2698	2852	2700	2854
Fifth Sandstone	2852	3002	2854	3004
Bayard	3002	3874	3004	3876
Speechley	3874	4111	3876	4113
Baltown	4111	4538	4113	4540
Bradford	4538	4974	4540	4976
Benson	4974	5225	4976	5227
Alexander	5225	6189	5227	6212
Sycamore	6189	6361	6212	6412
Middlesex	6361	6490	6412	6622
Burkett	6490	6517	6622	6681
Tully	6517	6545	6681	6771
Marcellus	6545	NA	6771	NA

\*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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## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/21/2015
Job End Date:	1/25/2016
State:	West Virginia
County:	Doddridge
API Number:	47-017-06659-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Hileman 1H
Longitude:	-80.84015800
Latitude:	39.23406400
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,598
Total Base Water Volume (gal):	15,844,284
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	Base Fluid	Water	7732-18-5	100.00000	90.68923	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	8.89891	
LGC-15	U.S. Well Services	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.08978	
			Petroleum Distillates	64742-47-8	60.00000	0.08502	
			Suspending agent (solid)	14808-60-7	3.00000	0.01373	
			Surfactant	68439-51-0	3.00000	0.00539	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.08909	
			Hydrogen Chloride	7647-01-0	18.00000	0.02128	
WFRA-405	U.S. Well Services	Friction Reducer	Water	7732-18-5	60.00000	0.04020	
			2-Propenoic acid, polymer with 2-propenamide	29003-06-9	30.00000	0.02010	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01618	
			Ethoxylated alcohol blend	68002-97-1	4.00000	0.00268	



SI-1100	U.S. Well Services	Scale Inhibitor					
			Water	7732-18-5	80.00000	0.01051	
			Ethylene Glycol	107-21-1	25.00000	0.00371	
			Copolymer of Maleic and Acrylic acid	52255-49-9	10.00000	0.00155	
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	7.50000	0.00133	
			Phosphino carboxylic acid polymer	71050-62-9	5.00000	0.00085	
			Hexamethylene triamine penta (methylene phosphonic acid)	34690-00-1	5.00000	0.00085	
			Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5	2.00000	0.00034	
X-BAC 1020	U.S. Well Services	Anti-Bacterial Agent					
			2,2-dibromo-3-nitropropionamide	10222-01-2	20.00000	0.00424	
			Deionized Water	7732-18-5	28.00000	0.00242	
AP One	U.S. Well Services	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00214	
AI-302	U.S. Well Services	Acid Corrosion Inhibitors					
			Water	7732-18-5	95.00000	0.00039	
			2-Propyn-1-ol compound with methylxirane	38172-91-7	15.00000	0.00006	

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)

**RECEIVED**  
 APR 22 2016  
 WV GEOLOGICAL SURVEY  
 MORGANTOWN, WV

LATITUDE 39°15'00" 1,934'

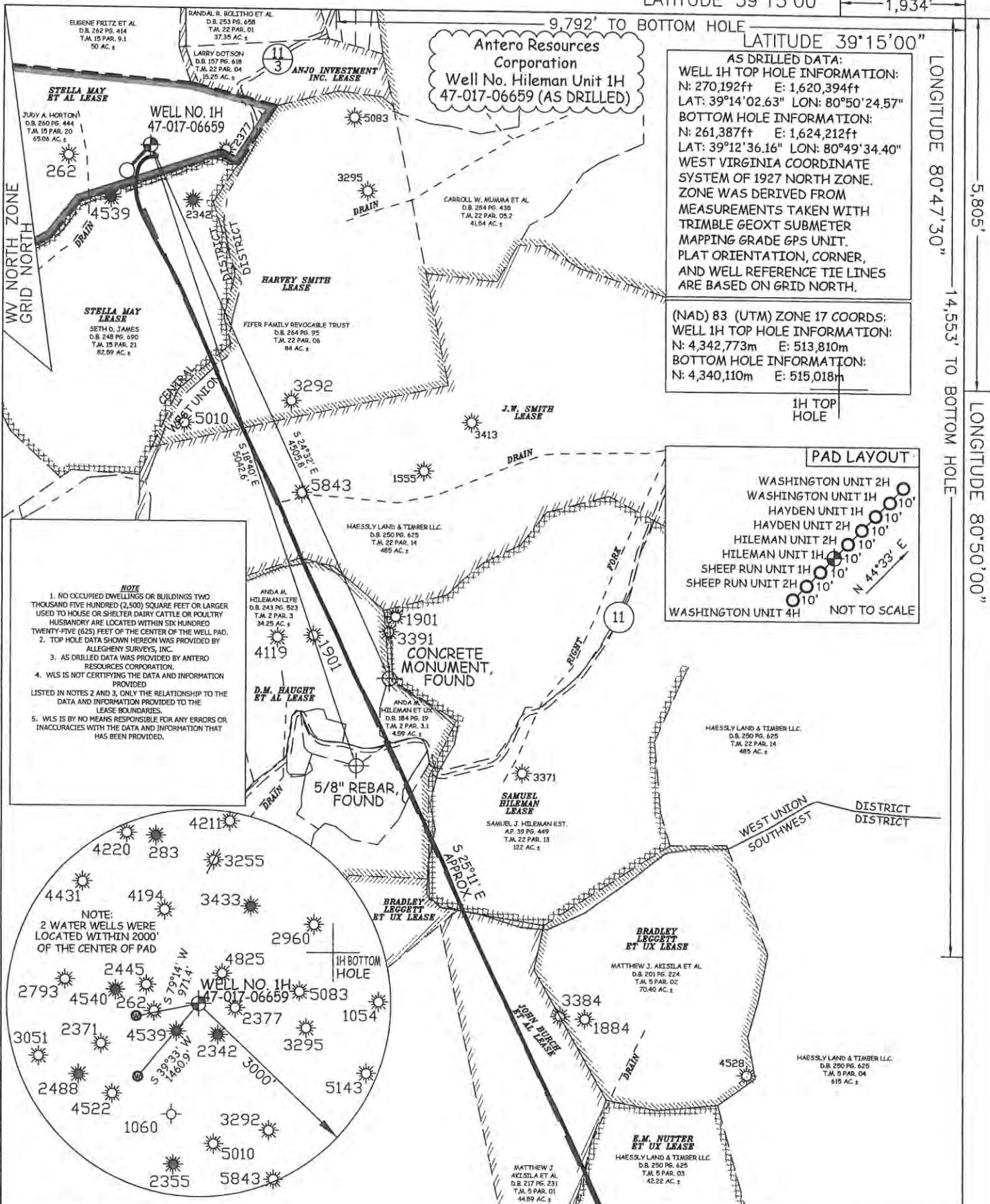
LATITUDE 39°15'00"

LONGITUDE 80°47'30"

5,805'

14,553' TO BOTTOM HOLE

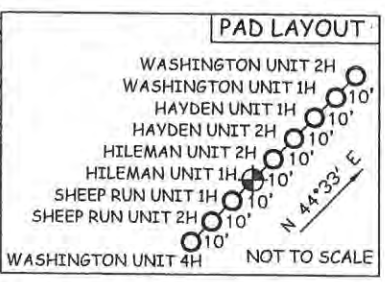
LONGITUDE 80°50'00"



**AS DRILLED DATA:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 270,192ft E: 1,620,394ft  
 LAT: 39°14'02.63" LON: 80°50'24.57"  
**BOTTOM HOLE INFORMATION:**  
 N: 261,387ft E: 1,624,212ft  
 LAT: 39°12'36.16" LON: 80°49'34.40"  
 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.

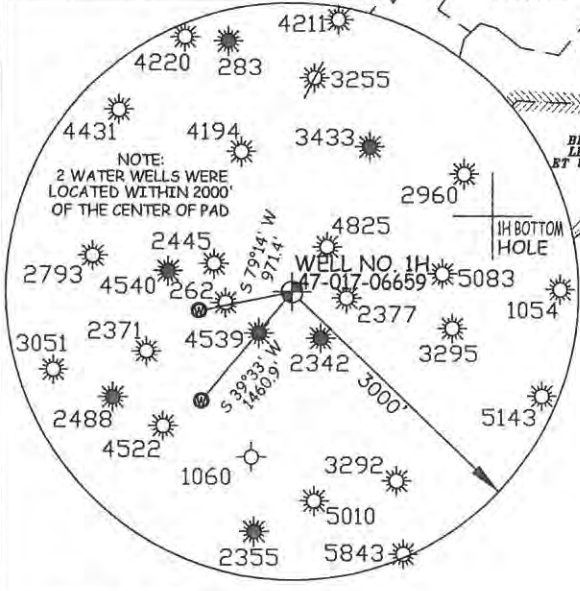
**(NAD) 83 (UTM) ZONE 17 COORDS:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 4,342,773m E: 513,810m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,340,110m E: 515,018m

1H TOP HOLE



**NOTE**

1. NO OCCURRED 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.



JOB # 14-087WA  
 DRAWING # HILEMAN1HAD  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

**LEGEND**

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

DATE 07/16/15  
 OPERATOR'S WELL # HILEMAN UNIT #1H  
 API WELL # 47 - 017 - 06659  
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS  
 WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL  
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X  
 LOCATION: ELEVATION 1,066' ORIGINAL -1,053' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER  
 QUADRANGLE OXFORD 7.5 DISTRICT CENTRAL COUNTY DODDRIDGE  
 SURFACE OWNER JUDY A. HORTON ACREAGE 65.06 ACRES +/-  
 OIL & GAS ROYALTY OWNER STELLA MAY ET AL; STELLA MAY; HARVEY SMITH; J.W. SMITH; D.M. HAUGHT ET AL; SAMUEL HILEMAN; JOHN BURCH ET AL; E.M. NUTTER ET UX  
 LEASE ACREAGE 125.5 ACRES+; 83 ACRES+; 450 ACRES+; 486 ACRES+; 132 ACRES+; 122 ACRES+; 46 ACRES+; 42.36 ACRES+  
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE  
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL  
 (SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG  
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,447' TVD 15,966' MD  
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER  
 ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM  
 DENVER, CO 80202 ADDRESS 5400 D BIG TYLER ROAD  
 CHARLESTON, WV 25313