

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

API 47 - 017 - 06313 County Doddridge District New Milton  
Quad New Milton 7.5' Pad Name Pennington North Pad Field/Pool Name ---  
Farm name Pennington, Bernard C., et al Well Number Proudfoot 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 4340153m Easting 522533m  
Landing Point of Curve Northing 4339155.22m Easting 522444.18m  
Bottom Hole Northing 4338127m Easting 522790m

Elevation (ft) 1277' 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 10/4/2013 Date drilling commenced 3/24/2014 Date drilling ceased 8/11/2014  
Date completion activities began 9/6/2014 Date completion activities ceased 12/13/2014  
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 57' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1411' Void(s) encountered depths No  
Coal depth(s) ft 187', 787', 1477' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

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Reviewed by: JN 7-26:15

WR-35  
Rev. 8/23/13

API 47-017 - 06313 Farm name Pennington, Bernard C., et al Well number Proudfoot 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	24"	20"	40'	New	94# J-55	N/A	Y
Surface	17- 1/2"	13- 3/8"	379'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2588'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	13690'	New	20# P-110	N/A	Y
Tubing		2-3/8"	7202'		5.95# 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	444 sx	15.6	1.18	263	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1013 sx	15.6	1.18	811	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1075 sx (Lead) 1037 sx (Tail)	14.5 Lead 15.2 Tail	1.30 Lead 1.86 Tail	2658	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 13690' MD, 7112' TVD (BHL) \_\_\_\_\_ Loggers TD (ft) 13637'  
 Deepest formation penetrated Marcellus \_\_\_\_\_ Plug back to (ft) N/A  
 Plug back procedure N/A \_\_\_\_\_

Kick off depth (ft) 6637' \_\_\_\_\_

\*\* This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Proudfoot Unit 2H API #47-017-06320). Please reference the wireline logs submitted with Form WR-35 for Proudfoot 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 \_\_\_\_\_

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WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

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WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_

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API 47-017-06313 Farm Name Pennington, Bernard C., et al Well Number Proudfoot Unit 1H

**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	6-Sep-14	13,427	13,594	60	Marcellus
2	29-Oct-14	13,230	13,396	60	Marcellus
3	29-Oct-14	13,032	13,199	60	Marcellus
4	29-Oct-14	12,835	13,002	60	Marcellus
5	29-Oct-14	12,638	12,804	60	Marcellus
6	30-Oct-14	12,440	12,607	60	Marcellus
7	30-Oct-14	12,243	12,409	60	Marcellus
8	30-Oct-14	12,045	12,212	60	Marcellus
9	30-Oct-14	11,848	12,014	60	Marcellus
10	30-Oct-14	11,650	11,817	60	Marcellus
11	31-Oct-14	11,453	11,619	60	Marcellus
12	31-Oct-14	11,255	11,422	60	Marcellus
13	31-Oct-14	11,058	11,224	60	Marcellus
14	31-Oct-14	10,860	11,027	60	Marcellus
15	1-Nov-14	10,663	10,829	60	Marcellus
16	1-Nov-14	10,465	10,632	60	Marcellus
17	1-Nov-14	10,268	10,435	60	Marcellus
18	1-Nov-14	10,071	10,237	60	Marcellus
19	2-Nov-14	9,873	10,040	60	Marcellus
20	2-Nov-14	9,676	9,842	60	Marcellus
21	2-Nov-14	9,478	9,645	60	Marcellus
22	2-Nov-14	9,281	9,447	60	Marcellus
22.1	N/A	N/A	N/A	N/A	N/A
23	3-Nov-14	9,083	9,250	60	Marcellus
24	4-Nov-14	8,886	9,052	60	Marcellus
25	4-Nov-14	8,688	8,855	60	Marcellus
26	4-Nov-14	8,491	8,657	60	Marcellus
27	5-Nov-14	8,293	8,460	60	Marcellus
28	5-Nov-14	8,096	8,262	60	Marcellus
29	5-Nov-14	7,898	8,065	60	Marcellus
30	5-Nov-14	7,701	7,868	60	Marcellus
31	6-Nov-14	7,504	7,670	60	Marcellus
32	6-Nov-14	7,306	7,473	60	Marcellus

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## API 47-017-06313 Farm Name Pennington, Bernard C., et al Well Number Proudfoot 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	28-Oct-14	71.0	6,898	6,135	5,123	236,437	6,627	N/A
2	29-Oct-14	65.8	7,135	5,682	5,423	203,706	7,239	N/A
3	29-Oct-14	62.3	6,809	5,626	5,262	237,300	6,289	N/A
4	29-Oct-14	62.0	6,667	5,606	5,389	212,934	6,067	N/A
5	29-Oct-14	65.8	6,561	5,473	5,386	236,267	6,316	N/A
6	30-Oct-14	64.7	6,464	5,358	5,367	236,807	6,287	N/A
7	30-Oct-14	62.7	6,309	5,364	5,152	238,038	6,204	N/A
8	30-Oct-14	62.4	6,274	5,219	5,195	240,183	6,223	N/A
9	30-Oct-14	64.9	6,555	5,677	5,309	237,340	6,226	N/A
10	31-Oct-14	64.8	6,354	5,453	4,359	236,707	6,229	N/A
11	31-Oct-14	62.4	6,545	5,810	5,357	236,470	6,133	N/A
12	31-Oct-14	63.7	6,662	6,591	5,458	238,600	6,169	N/A
13	31-Oct-14	64.5	6,545	5,359	5,369	236,498	6,223	N/A
14	1-Nov-14	64.7	6,467	5,658	5,332	233,780	6,182	N/A
15	1-Nov-14	62.3	6,337	5,500	5,352	238,611	6,092	N/A
16	1-Nov-14	53.7	6,470	5,437	5,340	237,382	6,000	N/A
17	1-Nov-14	65.1	6,530	5,607	5,346	237,447	6,068	N/A
18	2-Nov-14	64.8	6,502	5,638	5,396	236,566	6,097	N/A
19	2-Nov-14	62.4	6,649	5,726	5,574	234,627	5,999	N/A
20	2-Nov-14	62.3	6,771	5,881	5,685	236,856	6,032	N/A
21	2-Nov-14	64.6	6,604	5,704	5,544	236,627	6,073	N/A
22	3-Nov-14	58.7	6,383	6,018	0	84,702	3,344	N/A
22.1	3-Nov-14	50.9	6,273	0	5,532	0	3,176	N/A
23	4-Nov-14	63.4	6,623	5,840	5,677	235,495	5,936	N/A
24	4-Nov-14	36.4	6,440	5,659	5,362	231,746	5,913	N/A
25	4-Nov-14	64.7	6,545	5,878	5,706	232,725	5,979	N/A
26	5-Nov-14	64.8	6,454	5,812	5,550	238,187	5,878	N/A
27	5-Nov-14	64.2	6,494	6,251	5,756	236,463	5,800	N/A
28	5-Nov-14	64.3	6,737	6,504	5,644	178,262	6,296	N/A
29	5-Nov-14	65.3	6,464	5,793	5,780	222,879	6,353	N/A
30	5-Nov-14	63.8	6,364	5,931	5,752	235,872	5,730	N/A
31	5-Nov-14	63.4	6,273	6,680	5,487	237,276	5,763	N/A
32	6-Nov-14	64.4	6,485	6,202	5,676	237,714	5,797	N/A
	AVG=	62.5	6,535	5,608	5,262	7,290,504	196,738	TOTAL

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API 47-017-06313 Farm Name Pennington, Bernard C., et al Well Number Proudfoot Unit 1H

## 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	57'	N/A	57'	N/A
Silty Shale	0	67	0	67
Sandy siltstone	est. 67	187	est. 67	187
Coal	est. 187	227	est. 187	227
Sandy Siltstone	est. 227	547	est. 227	547
Sandstone	est. 547	707	est. 547	707
Limestone	est. 707	747	est. 707	747
Siltstone	est. 747	787	est. 747	787
Pittsburgh Coal	est. 787	847	est. 787	847
Sandy Siltstone	est. 847	1027	est. 847	1027
Limey Siltstone	est. 1027	1087	est. 1027	1087
Sandy Siltstone	est. 1087	1307	est. 1087	1307
Sandstone	est. 1307	1367	est. 1307	1367
Shale	est. 1367	1477	est. 1367	1477
Coal	est. 1477	1482	est. 1477	1482
Sandy Siltstone Trace coal	est. 1482	1527	est. 1482	1527
Sandstone	est. 1527	1587	est. 1527	1587
Sandstone Trace Coal	est. 1587	1747	est. 1587	1747
Silty Sandstone	est. 1747	1787	est. 1747	1787
Sandstone Trace Coal	est. 1787	1887	est. 1787	1887
Sandy siltstone	est. 1887	2065	est. 1887	2043
Big Lime	2065	2194	2065	2198
Big Injun	2194	2432	2198	2435
Gantz Sand	2432	2604	2435	2608
Fifty Foot Sandstone	2604	2815	2608	2819
Gordon	2815	3137	2819	3141
Fifth Sandstone	3137	3203	3141	3207
Bayard	3203	3507	3207	3511
Warren	3507	3827	3511	3832
Speechley	3827	4018	3832	4026
Baltown	4018	4638	4026	4658
Bradford	4638	5108	4658	5201
Benson	5108	5346	5201	5463
Alexander	5346	5540	5463	5674
Elk	5540	5988	5674	6163
Rhinestreet	5988	6466	6163	6508
Sycamore	6466	6614	6686	6862
Middlesex	6614	6744	6862	7040
Burkett	6744	6785	7040	7108
Tully	6785	6849	7108	7263
Marcellus	6849	NA	7263	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.

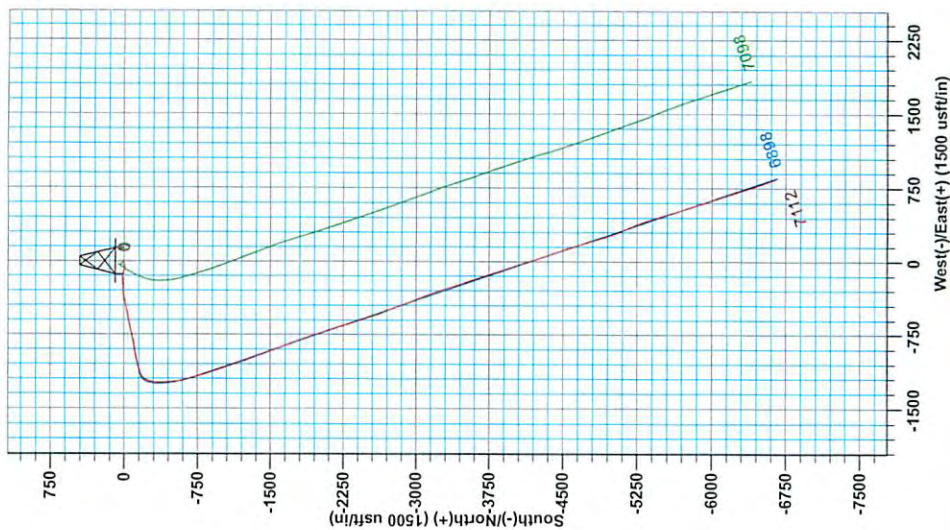
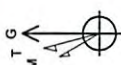
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Azimuths to Grid North  
 True North: -0.17°  
 Magnetic North: -8.64°  
 Magnetic Field  
 Strength: 52270.8sNT  
 Dip Angle: 66.76°  
 Date: 4/7/2014  
 Model: IGRF2010

To convert Magnetic North to Grid, Subtract 8.64°  
 To convert True North to Grid, Subtract 0.16°



**WELL DETAILS**  
 Proudfoot Unit 1H  
 Ground Level: 1275.0  
 Easting: 1714297.8539° 12' 36.987 80° 44' 21.024 W  
 Longitude: 1714306.91

**PROJECT DETAILS:** Doddridge County WV  
 Geodetic System: Universal Transverse Mercator (US Survey Feet)  
 Datum: NAD 1927 (NADCON CONUS)  
 Ellipsoid: Clarke 1866  
 Zone: Zone 17N (84 W to 78 W)  
 System Datum: Mean Sea Level

**SITE DETAILS:** Hamel/Lick Run/Proudfoot/Sibley Pad  
 10.57, August 18 2014  
 Genie Lightfoot  
 Scientific Drilling  
 421 South Eagle Lane  
 Oklahoma City, OK 73128

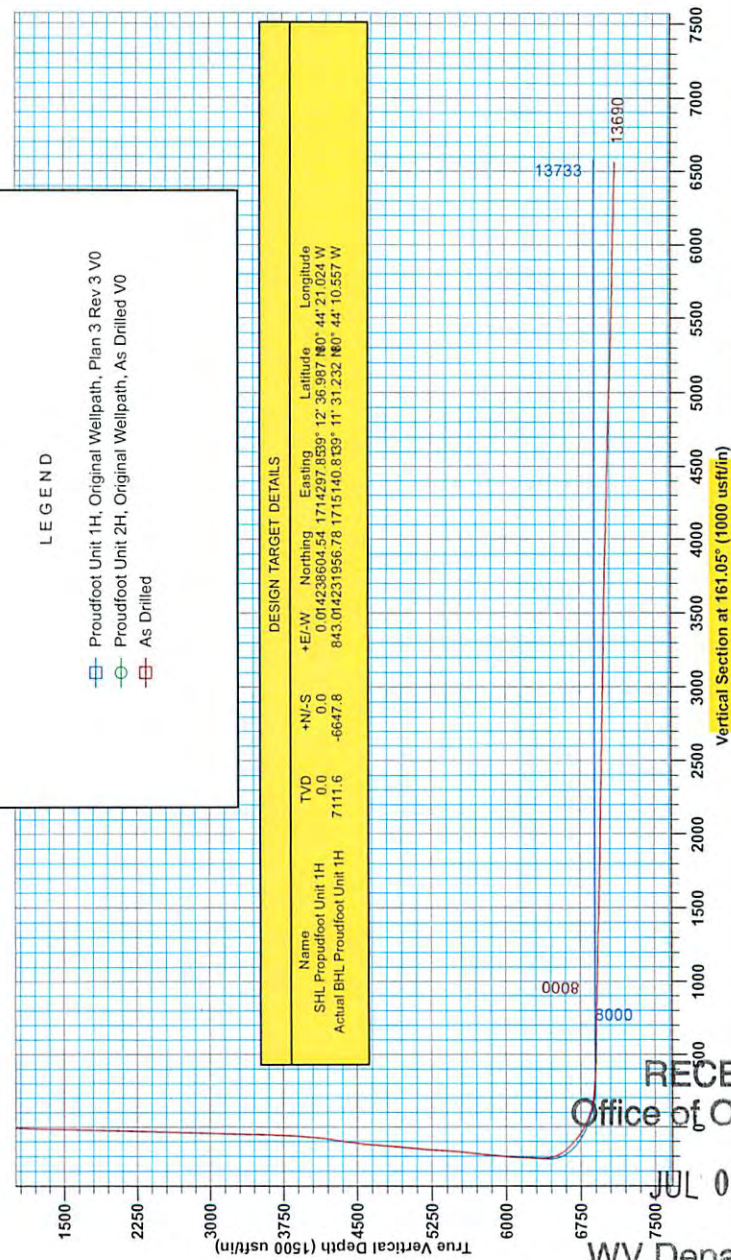


**LEGEND**  
 - Proudfoot Unit 1H, Original Wellpath, Plan 3 Rev 3 V0  
 - Proudfoot Unit 2H, Original Wellpath, As Drilled V0  
 - As Drilled

**DESIGN TARGET DETAILS**

Name	+N/-S	+E/-W	TVD	Northing	Easting	Latitude	Longitude
SHL Proudfoot Unit 1H	0.0	0.0	0.0	1714297.8539° 12' 36.987 80° 44' 21.024 W	1714306.91	36.987 N0° 44' 21.024 W	101.557 W
Actual BHL Proudfoot Unit 1H	7111.6	-6647.8	843.0142319566.78	1715140.8139° 11' 31.232 N0° 44' 10.557 W			

Patterson 317: 1275 GL + 22.5' KB @ 1287.5usft  
 1275.0



**Proudfoot Unit 1H**  
 Doddridge County WV  
 Northing: 14238604.54  
 Easting: 1714297.85  
 As Drilled

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## Antero Resources

Doddridge County WV  
Harriet/Lick Run/Proudfoot/Sibley Pad  
Proudfoot Unit 1H  
Original Wellpath

Design: As Drilled

## EOW Completion Report

18 August, 2014



Scientific Drilling

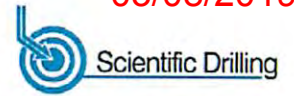
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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Proudfoot Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 317: 1275' GL + 22.5' KB @ 1297.5usft
<b>Site:</b>	Harriet/Lick Run/Proudfoot/Sibley Pad	<b>MD Reference:</b>	Patterson 317: 1275' GL + 22.5' KB @ 1297.5usft
<b>Well:</b>	Proudfoot Unit 1H	<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>	Doddridge County WV, McClellan District		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Fee	<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>	Harriet/Lick Run/Proudfoot/Sibley Pad, SHL Proudfoot Unit 2H				
<b>Site Position:</b>	<b>Northing:</b>	14,238,600.69 usft	<b>Latitude:</b>	39° 12' 36.949 N	
<b>From:</b> Map	<b>Easting:</b>	1,714,306.91 usft	<b>Longitude:</b>	80° 44' 20.909 W	
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.16 °

<b>Well</b>	Proudfoot Unit 1H, Marcellus					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,238,604.54 usft	<b>Latitude:</b>	39° 12' 36.987 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,714,297.85 usft	<b>Longitude:</b>	80° 44' 21.024 W
<b>Position Uncertainty</b>	3.0 usft	<b>Wellhead Elevation:</b>	1,297.5 usft	<b>Ground Level:</b>	1,275.0 usft	

<b>Wellbore</b>	Original Wellpath				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	4/7/2014	-8.48	66.76	52,271

<b>Design</b>	As Drilled				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	161.05	

<b>Survey Program</b>	<b>Date</b>	8/18/2014			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
109.5	6,335.1	Survey #6 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
6,344.5	13,690.0	Survey #5 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

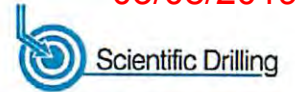
<b>Survey</b>	<b>MD (usft)</b>	<b>Inc (°)</b>	<b>Azi (azimuth) (°)</b>	<b>TVD (usft)</b>	<b>N/S (usft)</b>	<b>E/W (usft)</b>	<b>V. Sec (usft)</b>	<b>DLeg (°/100usft)</b>
	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
	109.5	0.52	332.50	109.5	0.4	-0.2	-0.5	0.47
	209.5	0.07	311.61	209.5	0.9	-0.5	-1.0	0.46
	309.5	0.10	262.99	309.5	0.9	-0.6	-1.1	0.08
	409.5	0.17	215.41	409.5	0.8	-0.8	-1.0	0.13
	509.5	0.76	246.72	509.5	0.4	-1.5	-0.6	0.62
	609.5	4.41	255.87	609.4	-0.8	-5.8	-1.1	3.66
	709.5	5.92	262.15	709.0	-2.4	-14.7	-2.4	1.61
	809.5	6.05	262.78	808.4	-3.8	-25.0	-4.5	0.15
	909.5	6.16	261.99	907.9	-5.2	-35.5	-6.6	0.14
	1,009.5	6.16	263.67	1,007.3	-6.6	-46.2	-8.8	0.18

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EOW Completion Report



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<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

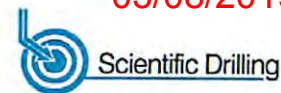
Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,109.5	4.96	270.95	1,106.8	-7.1	-55.8	-11.4	1.39
1,209.5	3.45	269.73	1,206.5	-7.0	-63.2	-13.9	1.51
1,309.5	3.06	270.08	1,306.4	-7.0	-68.8	-15.7	0.39
1,409.5	2.76	268.61	1,406.2	-7.1	-73.9	-17.3	0.31
1,509.5	2.57	271.61	1,506.1	-7.1	-78.6	-18.8	0.24
1,609.5	2.35	276.42	1,606.0	-6.8	-82.9	-20.5	0.30
1,709.5	1.93	280.88	1,706.0	-6.2	-86.5	-22.2	0.45
1,809.5	1.63	281.14	1,805.9	-5.7	-89.6	-23.7	0.30
1,909.5	1.61	283.33	1,905.9	-5.1	-92.4	-25.2	0.07
2,009.5	1.59	286.34	2,005.8	-4.3	-95.1	-26.8	0.09
2,109.5	1.51	285.27	2,105.8	-3.6	-97.7	-28.3	0.09
2,209.5	1.54	284.71	2,205.8	-2.9	-100.2	-29.8	0.03
2,309.5	1.47	288.07	2,305.7	-2.2	-102.7	-31.3	0.11
2,409.5	1.52	290.67	2,405.7	-1.3	-105.2	-32.9	0.08
2,509.5	1.64	288.50	2,505.7	-0.4	-107.8	-34.6	0.13
2,609.5	1.42	290.96	2,605.6	0.5	-110.3	-36.3	0.23
2,709.5	1.45	295.96	2,705.6	1.5	-112.6	-38.0	0.13
2,809.5	1.56	295.96	2,805.6	2.7	-115.0	-39.9	0.11
2,909.5	1.56	298.19	2,905.5	3.9	-117.4	-41.8	0.06
3,009.5	1.52	297.81	3,005.5	5.2	-119.8	-43.8	0.04
3,109.5	1.64	294.06	3,105.5	6.4	-122.2	-45.7	0.16
3,209.5	1.50	299.84	3,205.4	7.6	-124.7	-47.7	0.21
3,309.5	1.60	302.50	3,305.4	9.0	-127.0	-49.8	0.12
3,409.5	1.43	297.37	3,405.3	10.3	-129.3	-51.7	0.22
3,509.5	1.37	306.31	3,505.3	11.6	-131.4	-53.6	0.23
3,609.5	1.53	299.79	3,605.3	13.0	-133.5	-55.6	0.23
3,709.5	1.73	297.06	3,705.2	14.3	-136.0	-57.7	0.21
3,809.5	5.08	267.69	3,805.1	14.8	-141.8	-60.1	3.67
3,909.5	9.49	264.44	3,904.2	13.9	-154.4	-63.2	4.43
4,009.5	13.28	265.20	4,002.2	12.1	-174.0	-68.0	3.79
4,109.5	14.85	266.90	4,099.2	10.4	-198.3	-74.3	1.62
4,209.5	17.12	268.41	4,195.4	9.3	-225.8	-82.2	2.31
4,309.5	18.90	268.33	4,290.5	8.5	-256.7	-91.4	1.78
4,409.5	21.05	267.27	4,384.4	7.1	-290.8	-101.2	2.18
4,509.5	23.28	264.49	4,477.1	4.4	-328.5	-110.8	2.46
4,609.5	24.11	260.57	4,568.6	-0.9	-368.3	-118.8	1.78
4,709.5	23.51	257.46	4,660.1	-8.5	-407.9	-124.4	1.39
4,809.5	24.09	256.07	4,751.6	-17.8	-447.2	-128.4	0.81
4,909.5	24.86	256.72	4,842.6	-27.5	-487.4	-132.3	0.82
5,009.5	24.18	258.41	4,933.6	-36.5	-528.0	-137.0	0.98
5,109.5	24.24	259.34	5,024.8	-44.4	-568.2	-142.5	0.39
5,209.5	24.78	259.12	5,115.8	-52.1	-609.0	-148.4	0.55
5,309.5	24.99	259.01	5,206.5	-60.1	-650.3	-153.3	0.22
5,409.5	24.69	256.45	5,297.3	-69.0	-691.3	-159.2	1.12

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Proudfoot Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 317: 1275' GL + 22.5' KB @ 1297.5usft
<b>Site:</b>	Harriet/Lick Run/Proudfoot/Sibley Pad	<b>MD Reference:</b>	Patterson 317: 1275' GL + 22.5' KB @ 1297.5usft
<b>Well:</b>	Proudfoot Unit 1H	<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

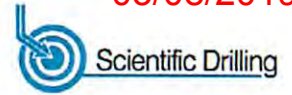
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,509.5	23.70	255.69	5,388.5	-78.9	-731.1	-162.8	1.04
5,609.5	23.02	258.43	5,480.3	-87.8	-769.7	-166.9	1.28
5,709.5	22.64	259.89	5,572.5	-95.1	-807.8	-172.4	0.68
5,809.5	23.60	260.60	5,664.4	-101.7	-846.5	-178.7	1.00
5,909.5	23.84	262.32	5,756.0	-107.7	-886.3	-185.9	0.73
6,009.5	23.51	261.03	5,847.6	-113.5	-926.0	-193.4	0.61
6,109.5	23.54	258.20	5,939.3	-120.7	-965.3	-199.3	1.13
6,209.5	23.20	255.85	6,031.1	-129.6	-1,003.9	-203.4	0.99
6,309.5	23.40	255.79	6,122.9	-139.3	-1,042.3	-206.7	0.20
6,335.1	23.10	256.03	6,146.4	-141.8	-1,052.1	-207.6	1.23
6,458.0	23.48	253.27	6,259.3	-154.6	-1,098.9	-210.6	0.94
6,543.0	22.69	251.78	6,337.5	-164.6	-1,130.7	-211.5	1.16
6,605.0	22.55	249.75	6,394.7	-172.5	-1,153.2	-211.4	1.28
6,637.0	23.74	241.67	6,424.2	-177.7	-1,164.7	-210.2	10.59
6,668.0	25.43	231.09	6,452.4	-184.8	-1,175.3	-206.9	15.19
6,699.0	27.35	225.41	6,480.1	-194.0	-1,185.6	-201.5	10.23
6,709.0	27.80	223.90	6,489.0	-197.3	-1,188.8	-199.5	8.29
<b>Sycamore</b>							
6,731.0	28.84	220.75	6,508.4	-205.0	-1,195.9	-194.5	8.29
6,762.0	30.69	214.51	6,535.3	-217.2	-1,205.2	-186.0	11.63
6,793.0	32.27	208.54	6,561.7	-231.0	-1,213.7	-175.7	11.27
6,825.0	33.68	202.82	6,588.6	-246.7	-1,221.2	-163.3	10.68
6,856.0	35.61	196.76	6,614.1	-263.2	-1,227.1	-149.5	12.73
6,885.0	36.92	192.88	6,637.5	-279.8	-1,231.5	-135.3	9.10
<b>Middlesex</b>							
6,887.0	37.01	192.62	6,639.1	-281.0	-1,231.8	-134.2	9.10
6,919.0	38.34	188.50	6,664.4	-300.2	-1,235.3	-117.2	8.90
6,950.0	41.51	185.02	6,688.2	-320.0	-1,237.7	-99.3	12.51
6,982.0	43.53	181.38	6,711.8	-341.5	-1,238.9	-79.3	9.95
7,013.0	45.73	180.68	6,733.8	-363.3	-1,239.2	-58.8	7.27
7,045.0	48.01	178.74	6,755.7	-386.7	-1,239.1	-36.7	8.39
7,063.0	50.26	178.12	6,767.5	-400.3	-1,238.7	-23.7	12.75
<b>Burkett</b>							
7,076.0	51.88	177.69	6,775.6	-410.4	-1,238.4	-14.0	12.75
7,108.0	54.26	176.46	6,794.9	-435.9	-1,237.1	10.6	8.05
7,131.0	56.21	175.82	6,808.0	-454.8	-1,235.8	28.8	8.80
<b>Tully</b>							
7,140.0	56.98	175.58	6,812.9	-462.3	-1,235.2	36.1	8.80
7,171.0	60.81	174.13	6,829.0	-488.7	-1,232.8	61.9	12.99
7,203.0	64.89	173.29	6,843.6	-517.0	-1,229.7	89.6	12.96
7,235.0	69.12	171.01	6,856.1	-546.2	-1,225.7	118.5	14.76
7,266.0	71.58	168.64	6,866.5	-574.9	-1,220.5	147.4	10.71
7,267.0	71.68	168.60	6,866.8	-575.8	-1,220.3	148.3	10.81
<b>Hamilton</b>							

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EOW Completion Report



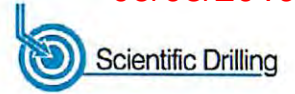
<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Proudfoot Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 317: 1275' GL + 22.5' KB @ 1297.5usft
<b>Site:</b>	Harriet/Lick Run/Proudfoot/Sibley Pad	<b>MD Reference:</b>	Patterson 317: 1275' GL + 22.5' KB @ 1297.5usft
<b>Well:</b>	Proudfoot Unit 1H	<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							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,286.0	73.61	167.86	6,872.5	-593.6	-1,216.6	166.3	10.81
<b>Marcellus</b>							
7,298.0	74.83	167.40	6,875.7	-604.9	-1,214.2	177.8	10.81
7,330.0	79.19	165.41	6,882.9	-635.2	-1,206.8	208.8	14.91
7,361.0	82.03	165.87	6,888.0	-664.8	-1,199.3	239.3	9.28
7,392.0	82.22	165.03	6,892.2	-694.5	-1,191.5	269.9	2.75
7,419.0	83.25	164.37	6,895.6	-720.3	-1,184.5	296.7	4.52
7,451.0	85.65	163.19	6,898.7	-750.9	-1,175.6	328.5	8.35
7,514.0	86.97	162.83	6,902.8	-811.0	-1,157.2	391.3	2.17
7,609.0	87.76	162.48	6,907.2	-901.6	-1,128.9	486.2	0.91
7,704.0	88.02	161.08	6,910.6	-991.8	-1,099.2	581.1	1.50
7,799.0	88.11	161.08	6,913.9	-1,081.6	-1,068.4	676.0	0.09
7,894.0	88.15	161.70	6,917.0	-1,171.6	-1,038.1	771.0	0.65
7,985.0	88.29	161.25	6,919.8	-1,257.8	-1,009.2	861.9	0.52
8,076.0	88.64	159.58	6,922.2	-1,343.5	-978.8	952.9	1.87
8,168.0	89.16	159.32	6,924.0	-1,429.7	-946.5	1,044.8	0.63
8,258.0	88.29	159.58	6,926.0	-1,513.9	-914.9	1,134.8	1.01
8,350.0	88.29	158.31	6,928.7	-1,599.7	-881.8	1,226.7	1.38
8,441.0	87.85	159.06	6,931.8	-1,684.5	-848.8	1,317.5	0.96
8,531.0	87.41	161.43	6,935.5	-1,769.1	-818.4	1,407.4	2.68
8,623.0	87.49	160.20	6,939.6	-1,855.9	-788.2	1,499.4	1.34
8,713.0	87.23	160.55	6,943.8	-1,940.6	-758.0	1,589.2	0.48
8,805.0	87.41	161.43	6,948.1	-2,027.5	-728.1	1,681.1	0.98
8,896.0	88.11	162.40	6,951.6	-2,113.9	-699.8	1,772.1	1.31
8,987.0	89.08	163.36	6,953.9	-2,200.8	-673.1	1,863.0	1.50
9,082.0	88.99	162.40	6,955.5	-2,291.6	-645.1	1,957.9	1.01
9,177.0	89.08	162.83	6,957.1	-2,382.3	-616.7	2,052.9	0.46
9,272.0	88.29	163.89	6,959.2	-2,473.3	-589.5	2,147.8	1.39
9,367.0	87.93	159.14	6,962.4	-2,563.3	-559.4	2,242.7	5.01
9,461.0	87.76	158.53	6,965.9	-2,650.9	-525.5	2,336.6	0.67
9,556.0	88.11	160.37	6,969.3	-2,739.8	-492.2	2,431.5	1.97
9,651.0	88.46	159.23	6,972.2	-2,828.9	-459.4	2,526.4	1.25
9,746.0	88.29	159.58	6,974.9	-2,917.8	-426.0	2,621.3	0.41
9,841.0	88.46	159.49	6,977.6	-3,006.7	-392.8	2,716.2	0.20
9,936.0	87.44	157.67	6,981.0	-3,095.1	-358.1	2,811.1	2.20
10,031.0	88.29	160.29	6,984.5	-3,183.7	-324.1	2,905.9	2.90
10,127.0	90.84	162.04	6,985.2	-3,274.6	-293.1	3,001.9	3.22
10,222.0	87.32	161.52	6,986.7	-3,364.8	-263.4	3,096.9	3.75
10,317.0	88.02	162.31	6,990.6	-3,455.0	-233.9	3,191.8	1.11
10,412.0	88.02	160.90	6,993.9	-3,545.1	-204.0	3,286.7	1.48
10,507.0	88.55	161.96	6,996.7	-3,635.1	-173.7	3,381.7	1.25
10,601.0	89.08	161.87	6,998.7	-3,724.5	-144.5	3,475.7	0.57
10,697.0	88.11	161.60	7,001.0	-3,815.6	-114.5	3,571.6	1.05
10,792.0	88.02	160.37	7,004.2	-3,905.4	-83.5	3,666.6	1.30

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Proudfoot Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 317: 1275' GL + 22.5' KB @ 1297.5usft
<b>Site:</b>	Harriet/Lick Run/Proudfoot/Sibley Pad	<b>MD Reference:</b>	Patterson 317: 1275' GL + 22.5' KB @ 1297.5usft
<b>Well:</b>	Proudfoot Unit 1H	<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

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
10,886.0	88.72	162.48	7,006.9	-3,994.4	-53.6	3,760.5	2.36
10,981.0	88.81	161.52	7,009.0	-4,084.7	-24.3	3,855.5	1.01
11,076.0	87.93	163.36	7,011.7	-4,175.3	4.4	3,950.4	2.15
11,171.0	87.23	162.66	7,015.7	-4,266.1	32.1	4,045.3	1.04
11,266.0	87.32	160.29	7,020.2	-4,356.0	62.3	4,140.2	2.49
11,361.0	87.49	159.06	7,024.5	-4,445.0	95.2	4,235.0	1.31
11,456.0	88.64	162.48	7,027.7	-4,534.6	126.5	4,330.0	3.80
11,550.0	88.29	162.83	7,030.2	-4,624.3	154.5	4,423.9	0.53
11,645.0	88.29	162.83	7,033.1	-4,715.1	182.5	4,518.8	0.00
11,739.0	88.55	161.87	7,035.6	-4,804.6	211.0	4,612.7	1.06
11,834.0	88.29	161.96	7,038.3	-4,894.9	240.5	4,707.7	0.29
11,929.0	87.76	162.04	7,041.5	-4,985.2	269.9	4,802.6	0.56
12,024.0	87.14	157.74	7,045.8	-5,074.3	302.5	4,897.5	4.57
12,119.0	86.44	155.45	7,051.1	-5,161.3	340.2	4,992.0	2.52
12,214.0	87.14	157.65	7,056.4	-5,248.3	377.9	5,086.6	2.43
12,309.0	85.91	161.25	7,062.2	-5,337.1	411.2	5,181.4	4.00
12,403.0	87.49	162.75	7,067.6	-5,426.3	440.2	5,275.2	2.32
12,498.0	87.67	163.10	7,071.6	-5,517.1	468.0	5,370.1	0.41
12,593.0	87.41	162.13	7,075.7	-5,607.7	496.4	5,464.9	1.06
12,688.0	87.85	161.69	7,079.6	-5,697.9	525.9	5,559.8	0.65
12,783.0	87.93	161.60	7,083.1	-5,788.0	555.8	5,654.8	0.13
12,877.0	88.02	161.16	7,086.4	-5,877.0	585.8	5,748.7	0.48
12,972.0	87.93	161.96	7,089.8	-5,967.1	615.8	5,843.6	0.85
13,067.0	87.93	162.66	7,093.2	-6,057.5	644.6	5,938.6	0.74
13,162.0	87.76	161.60	7,096.8	-6,147.9	673.8	6,033.5	1.13
13,257.0	87.93	162.31	7,100.4	-6,238.1	703.2	6,128.4	0.77
13,352.0	88.20	161.25	7,103.6	-6,328.3	732.9	6,223.3	1.15
13,447.0	88.37	161.69	7,106.4	-6,418.4	763.0	6,318.3	0.50
13,541.0	88.73	160.80	7,108.8	-6,507.3	793.3	6,412.3	1.02
13,628.0	88.99	160.55	7,110.5	-6,589.4	822.0	6,499.2	0.41
13,690.0	89.00	160.00	7,111.6	-6,647.8	843.0	6,561.2	0.89

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,709.0	6,489.0	-197.3	-1,188.8	Sycamore
6,885.0	6,637.5	-279.8	-1,231.5	Middlesex
7,063.0	6,767.5	-400.3	-1,238.7	Burkett
7,131.0	6,808.0	-454.8	-1,235.8	Tully
7,267.0	6,866.8	-575.8	-1,220.3	Hamilton
7,286.0	6,872.5	-593.6	-1,216.6	Marcellus

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Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

WV Department of Environmental Protection  
COMPASS 5000.1 Build 70

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/28/2014
Job End Date:	11/3/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06313-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Proudfoot Unit 1H
Longitude:	-80.73899200
Latitude:	39.21035800
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	7,112
Total Base Water Volume (gal):	8,736,933
Total Base Non Water Volume:	19,500



## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid	Fresh Water	7732-18-5	100.00000	90.48074	Density = 8.330
SAND - PREMIUM WHITE	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00000	8.40316	
SSA-2	Halliburton	Proppant	Crystalline silica, quartz	14808-60-7	100.00000	0.74931	
HYDROCHLORIC ACID 10-30%	Halliburton	Solvent	Hydrochloric acid	7647-01-0	30.00000	0.06509	
WG-36 GELLING AGENT	Halliburton	Gelling Agent	Guar gum	9000-30-0	100.00000	0.05846	
FR-66	Halliburton	Friction Reducer	Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01938	
LCA-1	Halliburton	Solvent	Paraffinic solvent	Confidential	100.00000	0.00267	Denise Tuck, Halliburton 3000 N. Sam Houston Pkwy E., Houston, TX 77032 281-871-6226

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			Fatty acids, tall oil	Confidential		0.00005	
	Other Ingredient(s)		Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	38527-49-1		0.00005	
	Other Ingredient(s)		Alcohols, C14-C15, ethoxylated	38951-67-7		0.00005	
	Other Ingredient(s)		Olefins	Confidential		0.00001	
	Other Ingredient(s)		Olefins	Confidential		0.00001	
	Other Ingredient(s)		Sodium sulfate	7757-82-6		0.00000	
	Other Ingredient(s)		Olefins	Confidential		0.00000	
	Other Ingredient(s)		Olefins	Confidential		0.00000	

\* 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)

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WV Department of  
 Environmental Protection

LATITUDE 39°15'00"

8,739'

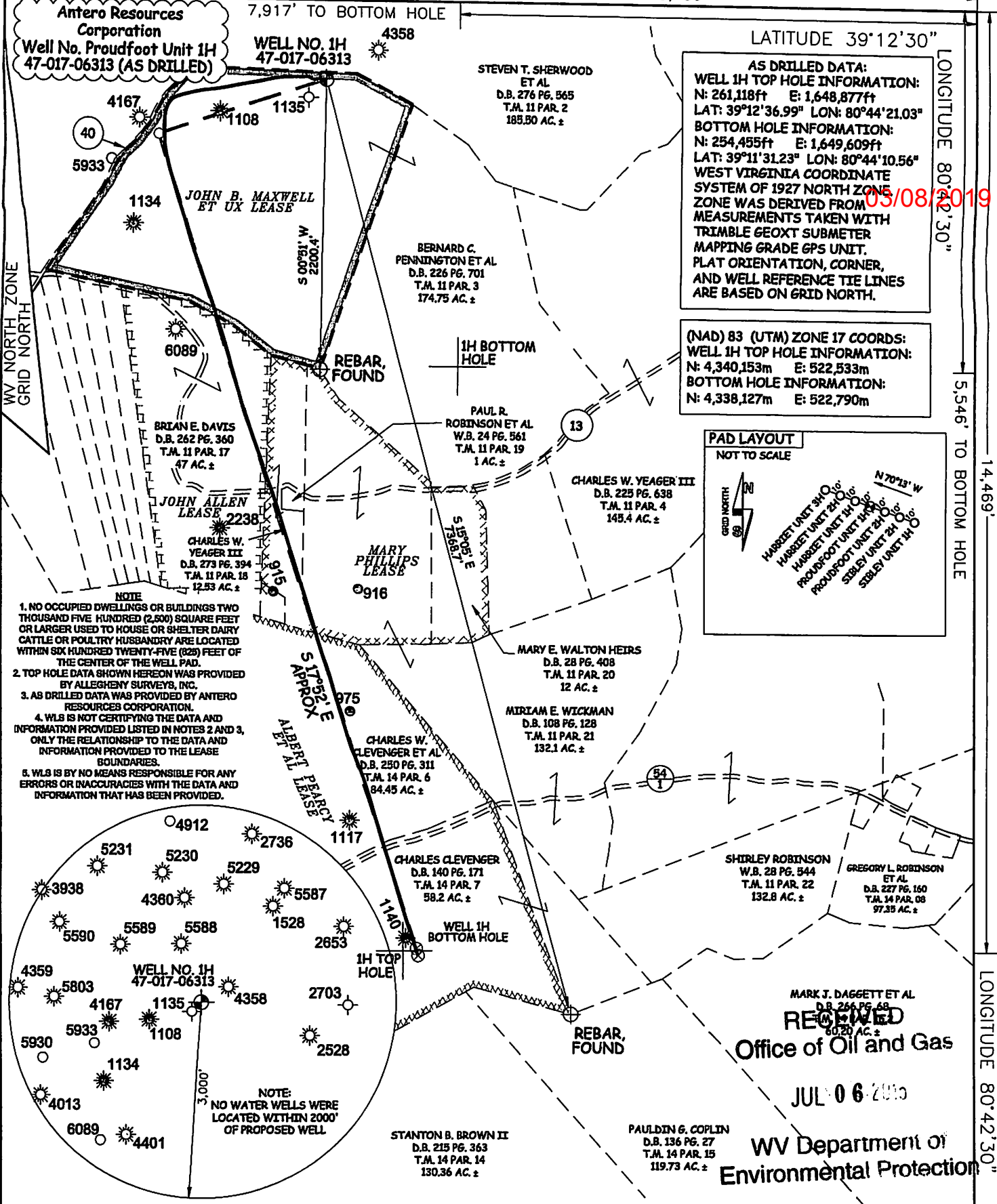
LATITUDE 39°12'30"

LONGITUDE 80°42'30"

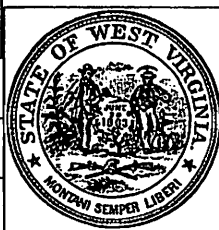
5,546' TO BOTTOM HOLE

14,469'

LONGITUDE 80°42'30"



JOB # 13-053WA  
DRAWING # PROUDFOOT1HAD  
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

DATE 06/17/15  
OPERATOR'S WELL # PROUDFOOT UNIT #1H  
API WELL # 47 - 017 - 06313  
STATE COUNTY PERMIT

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

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

LOCATION: ELEVATION 1,289' ORIGINAL - 1,277' AS DRILLED WATERSHED HEADWATERS MIDDLE ISLAND CREEK  
QUADRANGLE NEW MILTON 7.5 DISTRICT NEW MILTON COUNTY DODDRIDGE

SURFACE OWNER BERNARD C. PENNINGTON ET AL ACREAGE 174.75 ACRES +/-  
OIL & GAS ROYALTY OWNER JOHN B. MAXWELL ET UX; JOHN ALLEN; MARY PHILLIPS; ALBERT PEARCY ET AL LEASE ACREAGE 101.98 ACRES +/-; 47 ACRES +/-; 63.4 AC +/-; 375 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 PLUG & ABANDON CLEAN OUT & REPLUG  
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,112' TVD 13,690' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER  
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT