

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: JL 7-26:15
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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 ³ /sks)	Volume (ft ³)	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

PRODUCING FORMATION(S)	DEPTHS	
	DEPTH	DEPTH
Marcellus	6849' (TOP) TVD	7263' (TOP) MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3950 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 4913 mcfpd Oil --- bpd NGL --- bpd Water 272 bpd GAS MEASURED BY Estimated Orifice Pilot

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

*PLEASE SEE 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 Nabors Completion & Production Services, Co.
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company Halliburton
Address 121 Champion Way Suite 200 City Canonsburg State PA Zip 15317

Please insert additional pages as applicable.

Completed by Kara Quackenbush Telephone 303-357-7233
Signature *Kara Quackenbush* Title Permitting Agent Date 6/22/2015

Submittal of Hydraulic Fracturing Chemical Disclosure Information

Attach copy of FRACFOCUS Register WV Department of Environmental Protection
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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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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
Rhonestreet	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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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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LATITUDE 39°15'00"

8,739'

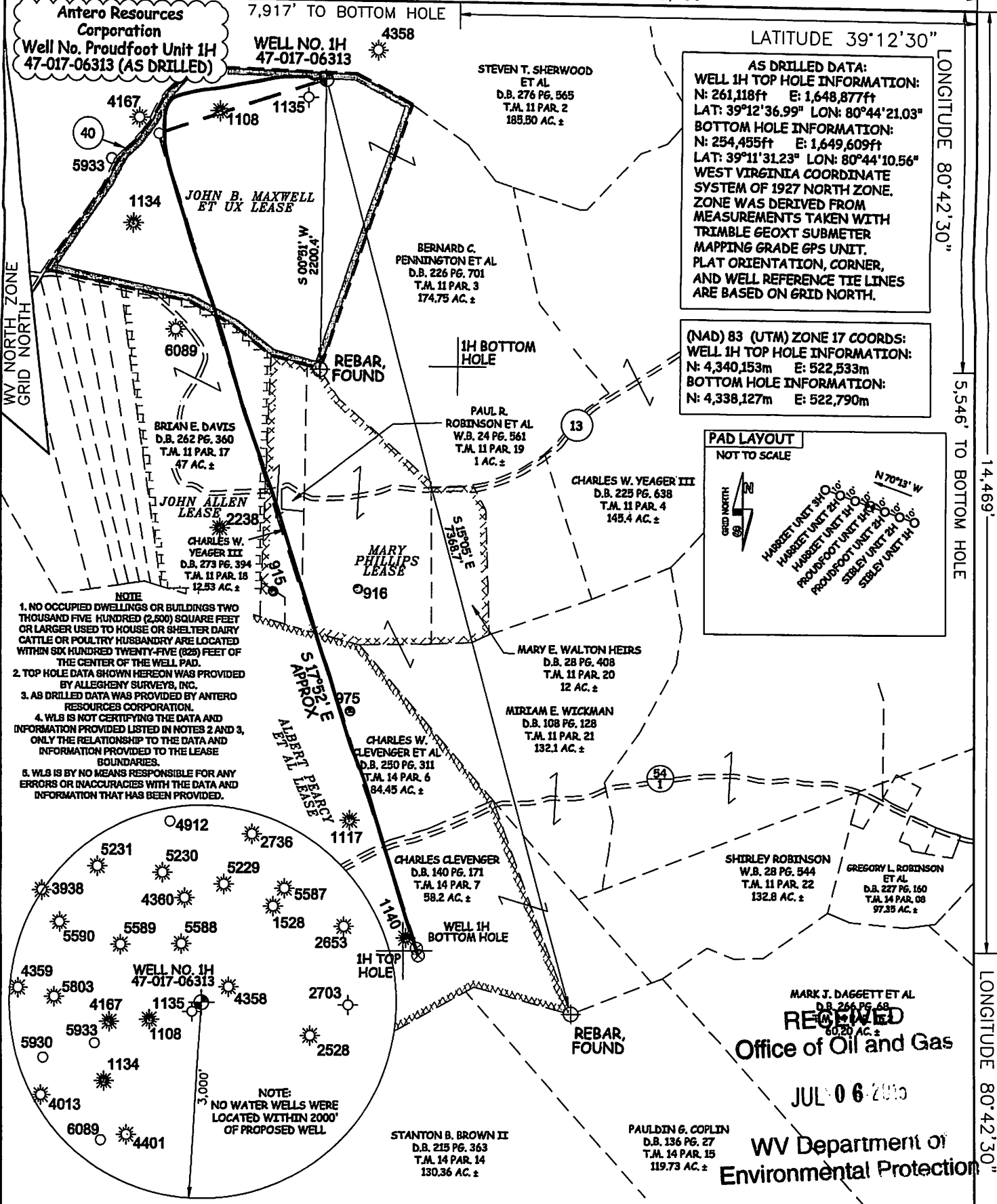
LATITUDE 39°12'30"

LONGITUDE 80°42'30"

5,546' TO BOTTOM HOLE

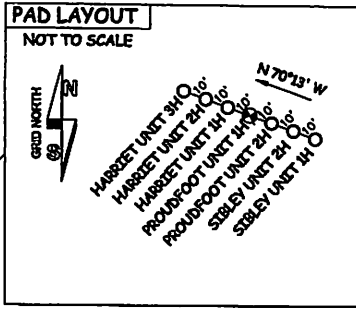
14,469'

LONGITUDE 80°42'30"

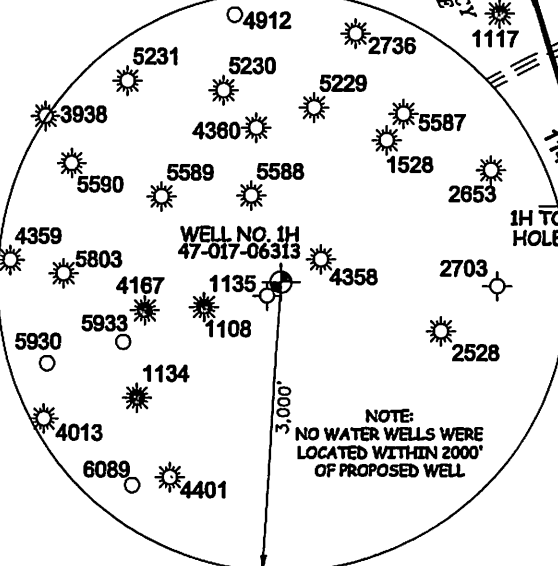


AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
 N: 261,118ft E: 1,648,877ft
 LAT: 39°12'36.99" LON: 80°44'21.03"
BOTTOM HOLE INFORMATION:
 N: 254,455ft E: 1,649,609ft
 LAT: 39°11'31.23" LON: 80°44'10.56"
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH 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: 4,340,153m E: 522,533m
BOTTOM HOLE INFORMATION:
 N: 4,338,127m E: 522,790m

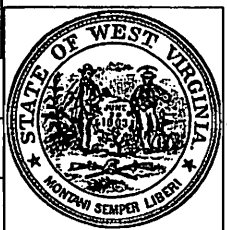


- NOTE**
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
 3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
 5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



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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

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

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 1,289' 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) (X) 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 CT CORPORATION SYSTEM
DENVER, CO 80202 5400 D BIG TYLER ROAD
CHARLESTON, WV 25313

07/24/2015

COUNTY NAME PERMIT