

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

RECEIVED

FEB 12 2016

WV GEOLOGICAL SURVEY  
MORGANTOWN, WV

API 47 - 085 - 10102 County Ritchie District Union  
Quad Pullman 7.5' Pad Name John Richards Pad Field/Pool Name ----  
Farm name Richards, John Wayne Well Number Duckworth 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 4339576m Easting 506949m  
Landing Point of Curve Northing 4339301.34m Easting 506548.39m  
Bottom Hole Northing 4337106m Easting 506939m

Elevation (ft) 1025' 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 6/25/2014 Date drilling commenced 9/30/2014 Date drilling ceased 12/\*10/2014  
Date completion activities began 9/3/2015 Date completion activities ceased 11/18/2015  
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 42', 52', 172' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft None Identified Void(s) encountered (Y/N) depths No  
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by:

\_\_\_\_\_

API 47-085 - 10102 Farm name Richards, John Wayne Well number Duckworth 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# K-55	N/A	Y
Surface	17- 1/2"	13- 3/8"	396'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2523'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	14553'	New	23# P-110	N/A	Y
Tubing		2-3/8"	6743'		4.7# N-80	N/A	
Packer type and depth set	N/A						

Comment Details First attempt to cement Surface Casing with 423 sacks of Class A Cement was unsuccessful. A top-job was performed with 273 sacks of cement, successfully bring returns to the surface. WVDEP Inspector, Dave Cowan, was notified on 11/16/2014 of cement top job.

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	150 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	696 sx*	15.6	1.18	283	0'	8 Hrs.
Coal							
Intermediate 1	Class A	982 sx	15.6	1.00	790	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	997 sx (Lead) 1225 sx (Tail)	14.5 Lead 15.2 Tail	1.30 Lead 1.86 Tail	2871	-500' Into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 14553' MD, 6357' TVD (BHL), 6389' (Deepest Point Drilled) Loggers TD (ft) 14506'  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6514'

\*\* This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Duckworth Unit 3H API #47-085-10103). Please reference the wireline logs submitted with Form WR-35 for Duckworth Unit 3H. 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 \_\_\_\_\_





API 47- 085 - 10102 Farm name Richards, John Wayne Well number Duckworth Unit 1H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6336' (TOP) TVD	6766' (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 8449 mcfpd Oil 63 bpd NGL --- bpd Water --- 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 *Kara Quackenbush* Title Permit Representative Date 1/15/2016

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	3-Sep-15	14,296	14,462	60	Marcellus
2	6-Oct-15	14,099	14,265	60	Marcellus
3	6-Oct-15	13,902	14,068	60	Marcellus
4	7-Oct-15	13,705	13,871	60	Marcellus
5	7-Oct-15	13,508	13,674	60	Marcellus
6	7-Oct-15	13,311	13,477	60	Marcellus
7	7-Oct-15	13,114	13,280	60	Marcellus
8	8-Oct-15	12,917	13,083	60	Marcellus
9	8-Oct-15	12,720	12,886	60	Marcellus
10	8-Oct-15	12,523	12,689	60	Marcellus
11	8-Oct-15	12,326	12,492	60	Marcellus
12	9-Oct-15	12,129	12,295	60	Marcellus
13	9-Oct-15	11,932	12,098	60	Marcellus
14	9-Oct-15	11,735	11,901	60	Marcellus
15	9-Oct-15	11,538	11,704	60	Marcellus
16	10-Oct-15	11,341	11,507	60	Marcellus
17	10-Oct-15	11,144	11,310	60	Marcellus
18	10-Oct-15	10,947	11,113	60	Marcellus
19	10-Oct-15	10,750	10,916	60	Marcellus
20	10-Oct-15	10,553	10,719	60	Marcellus
21	11-Oct-15	10,356	10,522	60	Marcellus
22	11-Oct-15	10,159	10,325	60	Marcellus
23	11-Oct-15	9,962	10,128	60	Marcellus
24	12-Oct-15	9,764	9,931	60	Marcellus
25	12-Oct-15	9,567	9,734	60	Marcellus
26	13-Oct-15	9,370	9,537	60	Marcellus
27	14-Oct-15	9,173	9,340	60	Marcellus
28	14-Oct-15	8,976	9,143	60	Marcellus
29	14-Oct-15	8,779	8,946	60	Marcellus
30	14-Oct-15	8,582	8,749	60	Marcellus
31	14-Oct-15	8,385	8,552	60	Marcellus
32	15-Oct-15	8,188	8,355	60	Marcellus
33	15-Oct-15	7,991	8,158	60	Marcellus
34	15-Oct-15	7,794	7,961	60	Marcellus
35	15-Oct-15	7,597	7,764	60	Marcellus
36	15-Oct-15	7,400	7,567	60	Marcellus
37	16-Oct-15	7,203	7,370	60	Marcellus
38	16-Oct-15	7,006	7,173	60	Marcellus
39	16-Oct-15	6,809	6,976	60	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	5-Oct-15	63.9	6,829	N/A	3,223	109,568	6,729	N/A
2	6-Oct-15	63.0	7,377	6,596	5,063	30,260	6,492	N/A
3	6-Oct-15	65.0	7,076	5,779	4,872	97,460	6,844	N/A
4	7-Oct-15	60.6	7,078	5,976	3,067	107,518	6,973	N/A
5	7-Oct-15	63.5	6,935	5,926	4,181	57,514	6,382	N/A
6	7-Oct-15	64.0	6,964	5,716	4,727	94,840	6,800	N/A
7	7-Oct-15	67.0	6,763	5,838	5,334	103,000	6,319	N/A
8	8-Oct-15	65.5	6,751	5,542	4,699	107,964	6,349	N/A
9	8-Oct-15	61.5	6,372	5,598	4,903	96,444	6,731	N/A
10	8-Oct-15	62.0	6,551	5,375	5,312	98,380	6,784	N/A
11	8-Oct-15	65.5	6,952	5,492	5,295	93,760	6,166	N/A
12	9-Oct-15	66.0	6,841	5,668	4,581	75,080	6,297	N/A
13	9-Oct-15	63.4	6,958	6,339	3,949	75,980	6,456	N/A
14	9-Oct-15	71.0	7,305	5,497	4,906	60,280	6,780	N/A
15	9-Oct-15	77.5	6,798	5,597	4,474	76,840	6,823	N/A
16	10-Oct-15	75.3	6,799	5,393	4,296	112,890	6,347	N/A
17	10-Oct-15	75.3	6,864	5,940	4,683	90,160	6,175	N/A
18	10-Oct-15	76.2	6,838	5,852	4,918	82,820	5,960	N/A
19	10-Oct-15	77.0	6,894	6,003	5,139	106,400	6,344	N/A
20	10-Oct-15	77.0	7,020	5,751	5,384	86,160	6,111	N/A
21	11-Oct-15	76.2	6,882	5,633	4,987	98,170	6,118	N/A
22	11-Oct-15	75.0	7,271	5,614	4,774	79,160	6,768	N/A
23	11-Oct-15	41.0	8,167	6,560	4,337	3,400	6,745	N/A
24	12-Oct-15	73.7	7,117	6,254	4,655	97,390	6,361	N/A
25	12-Oct-15	75.0	7,306	6,261	3,708	87,890	6,229	N/A
26	13-Oct-15	73.0	7,449	6,462	4,366	64,090	6,316	N/A
27	14-Oct-15	71.2	6,988	6,285	3,977	98,690	6,678	N/A
28	14-Oct-15	74.8	7,072	5,988	4,959	79,740	6,658	N/A
29	14-Oct-15	74.0	7,030	5,948	4,559	68,090	6,641	N/A
30	14-Oct-15	73.0	6,774	6,110	4,668	110,060	6,059	N/A
31	14-Oct-15	72.0	6,898	7,198	4,878	90,770	5,937	N/A
32	15-Oct-15	73.3	6,472	5,651	5,064	111,154	6,079	N/A
33	15-Oct-15	72.9	6,662	5,815	5,394	110,374	6,108	N/A
34	15-Oct-15	72.0	6,976	6,178	4,257	98,600	6,408	N/A
35	15-Oct-15	73.0	6,361	5,755	4,096	112,570	6,051	N/A
36	15-Oct-15	73.0	6,594	6,275	4,510	112,370	6,120	N/A
37	16-Oct-15	73.2	6,160	6,351	5,171	110,381	6,534	N/A
38	16-Oct-15	74.7	6,229	5,717	5,195	116,946	6,079	N/A
39	16-Oct-15	73.0	6,362	6,331	4,192	114,300	6,016	N/A
AVG=		<b>69.9</b>	<b>6,891</b>	<b>5,954</b>	<b>4,635</b>	<b>3,527,463</b>	<b>249,767</b>	TOTAL

## EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
Fresh Water	42'	N/A	42'	N/A
Fresh Water	52'	N/A	52'	N/A
Fresh Water	172'	N/A	172'	N/A
Silt	0	37	0	37
Sandstone	37	97	37	97
Silty Shale	97	417	97	417
Silty Sandstone	417	657	417	657
Sandy siltstone	657	737	657	737
Limey Shale	737	817	737	817
Silty Shale	817	1317	817	1317
Sandstone	1317	1357	1317	1357
Sandy shale	1357	1417	1357	1417
Sandstone	1417	1497	1417	1497
Sandy shale	1497	1577	1497	1577
Shale / Coal	1577	1637	1577	1637
Sandstone (Tr Coal)	1637	1817	1637	1817
Shale	1817	1897	1817	1897
Limey Siltstone	1897	1947	1897	1966
Big Lime	1943	2034	1966	2036
Big Injun	2034	2289	2036	2291
Gantz Sand	2289	2455	2291	2457
Fifty Foot Sandstone	2455	2660	2457	2662
Gordon	2660	2933	2662	2935
Fifth Sandstone	2933	3046	2935	3048
Bayard	3046	3247	3048	3432
Warren	3247	3833	3432	3852
Speechley	3833	3950	3852	3976
Baltown	3950	4503	3976	4599
Bradford	4503	4886	4599	5026
Benson	4886	5116	5026	5291
Alexander	5116	5314	5291	5513
Elk	5314	5726	5513	5962
Rhinestreet	5726	6025	5962	6295
Sycamore	6025	6179	6295	6481
Middlesex	6179	6288	6481	6648
Burkett	6288	6316	6648	6708
Tully	6316	6336	6708	6766
Marcellus	6336	NA	6766	NA



# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/5/2015
Job End Date:	10/16/2015
State:	West Virginia
County:	Ritchie
API Number:	47-085-10102-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Duckworth 1H
Longitude:	-80.91951700
Latitude:	39.20542200
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,389
Total Base Water Volume (gal):	11,011,728
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	91.23321	
Sand	J.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	8.27377	
HCL Acid (12.6%-18.0%)	J.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.16331	
LGC-15	J.S. Well Services	Gelling Agents	Hydrogen Chloride	7647-01-0	18.00000	0.03901	
WFRA-405	J.S. Well Services	Friction Reducer	Guar Gum	9000-30-0	50.00000	0.08599	
			Petroleum Distillates	64742-47-8	60.00000	0.08143	
			Suspending agent (solid)	14808-60-7	3.00000	0.01315	
			Surfactant	68439-51-0	3.00000	0.00516	
			Water	7732-18-5	40.00000	0.03093	
			2-Propenoic acid, polymer with 2-propanamide	9003-06-9	30.00000	0.03093	
			Petroleum Distillates	64742-47-8	20.00000	0.01245	
SI-1100	J.S. Well Services	Scale Inhibitor	Ethoxylated alcohol blend	68002-97-1	4.00000	0.00387	



			Water	7732-18-5	80.00000	0.00974
			Ethylene Glycol	107-21-1	25.00000	0.00344
			Copolymer of Maleic and Acrylic acid	52255-49-9	10.00000	0.00144
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	7.50000	0.00123
			Phosphino carboxylic acid polymer	71050-62-9	5.00000	0.00079
			Hexamethylene tramine penta (methylene phosphonic acid)	34690-00-1	5.00000	0.00079
			Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5	2.00000	0.00032
K-BAC 1020	U.S. Well Services	Anti-Bacterial Agent				
			2,2-dibromo-3-nitriopropionamide	10222-01-2	20.00000	0.00413
			Deionized Water	7732-18-5	28.00000	0.00236
AP One	U.S. Well Services	Gel Breakers				
			Ammonium Persulfate	7727-54-0	100.00000	0.00223
AI-301	U.S. Well Services	Acid Corrosion Inhibitors				
			Diethylene Glycol	111-46-6	30.00000	0.00013
			Methanamine	100-97-0	20.00000	0.00010
			Hydrogen Chloride	7647-01-0	10.00000	0.00004
			Polyethylene polyamine	68603-67-8	10.00000	0.00004
			Coco amine	61791-14-8	5.00000	0.00002
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

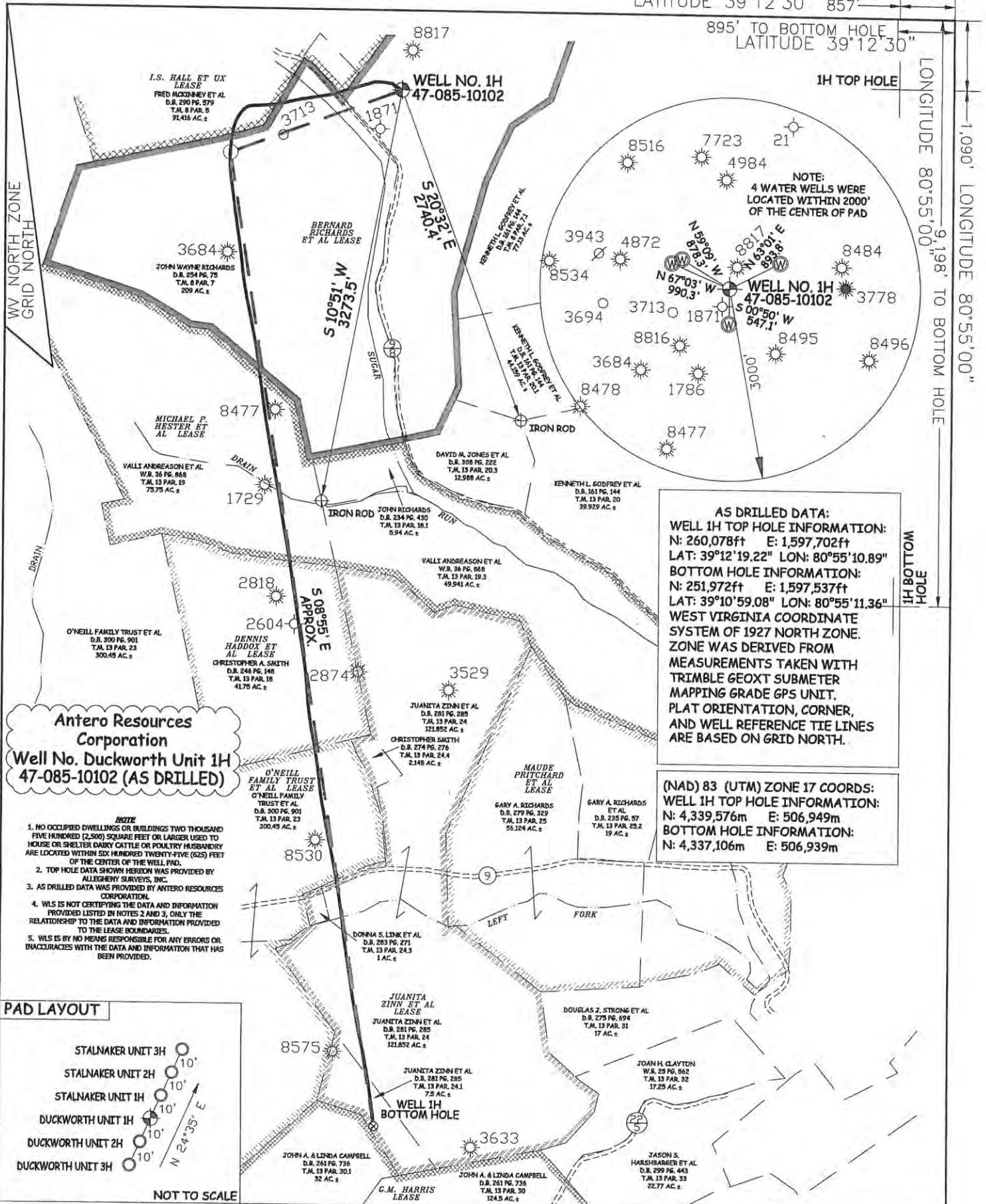
\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

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)

LATITUDE 39°12'30" 857'

895' TO BOTTOM HOLE  
LATITUDE 39°12'30"

LONGITUDE 80°55'00" 1,198' TO BOTTOM HOLE  
LONGITUDE 80°55'00"

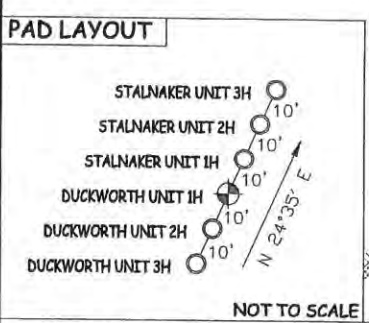


**AS DRILLED DATA:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 260,078ft E: 1,597,702ft  
 LAT: 39°12'19.22" LON: 80°55'10.89"  
**BOTTOM HOLE INFORMATION:**  
 N: 251,972ft E: 1,597,537ft  
 LAT: 39°10'59.08" LON: 80°55'11.36"  
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM 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: 4,339,576m E: 506,949m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,337,106m E: 506,939m

**Antero Resources Corporation**  
**Well No. Duckworth Unit 1H**  
**47-085-10102 (AS DRILLED)**

- 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.



JOB # 14-023 WA  
 DRAWING # DUCKWORTH1HADR  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS  
 WELL TYPE: OIL GAS  LIQUID INJECTION  WASTE DISPOSAL   
 (IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW   
 LOCATION: ELEVATION 1,035' ORIGINAL - 1,025' AS DRILLED WATERSHED SOUTH FORK HUGHES RIVER  
 QUADRANGLE PULLMAN 7.5 DISTRICT UNION COUNTY RITCHIE

SURFACE OWNER JOHN WAYNE RICHARDS ACREAGE 209 ACRES +/-  
 OIL & GAS ROYALTY OWNER BERNARD RICHARDS ET AL; I.S. HALL ET UX; LEASE ACREAGE 214 ACRES±; 100 ACRES±;  
 MICHAEL P. HEASTER ET AL; DENNIS HADDOX ET AL; O'NEILL FAMILY TRUST ET AL; JUANITA ZINN ET AL 234.5 ACRES±; 45.5 ACRES±; 517.83 ACRES±; 132.5 ACRES±

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY)  AS DRILLED  
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,356' TVD 14,553' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER  
 ADDRESS 1615 WYNKOOP STREET ADDRESS CT CORPORATION SYSTEM  
 DENVER, CO 80202 CHARLESTON, WV 25313

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

DATE 07/13/15  
 OPERATOR'S WELL # DUCKWORTH UNIT #1H  
 API WELL # 47 - 085 - 10102  
 STATE COUNTY PERMIT

COUNTY NAME PERMIT