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WR-35

Rev. 8/23/13

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

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

API 47 - 017 - 06430 County Doddridge District Central
Quad West Union 7.5' Pad Name Dotson-Holland Pad Field/Pool Name ---
Farm name Holland, Robert L., Jr. Well Number Zellerback 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 4347128m Easting 510969m
Landing Point of Curve Northing 4347118.22m Easting 511198.27m
Bottom Hole Northing 4345494m Easting 511991m

Elevation (ft) 989' 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 1/28/2014 Date drilling commenced 7/21/2014 Date drilling ceased 8/22/2014
Date completion activities began 10/9/2014 Date completion activities ceased 12/8/2014
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 56' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1527' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 381' 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 - 06430 Farm name Holland, Robert L., Jr. Well number Zellerback 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	133# J-55	N/A	Y
Surface	17- 1/2"	13- 3/8"	367'	New	48# J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2539'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	13034'	New	20# P-110	N/A	Y
Tubing		2-3/8"	6626'		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 ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	188 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	428 sx	15.6	1.18	255	0'	8 Hrs.
Coal							
Intermediate 1	Class A	935 sx	15.6	1.18	795	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	909 sx (Lead) 1061 sx (Tail)	14.5 Lead 15.2 Tail	1.44 Lead 1.8 Tail	2519	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 13034' MD, 6560' TVD (BHL) Loggers TD (ft) 12975'
Deepest formation penetrated Marcellus Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) 5770'

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 _____

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Amanda Unit 1H API #47-017-06431). Please reference the wireline logs submitted with Form WR-35 for Amanda Unit 1H. A Cement Bond Log has been included with this submittal.

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API 47- 017 - 06430 Farm name Holland, Robert L., Jr. Well number Zellerback Unit 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6399' (TOP)</u>	<u>TVD</u>	<u>6891' (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 8690 mcfpd Oil 0 bpd NGL --- bpd Water 670 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	
	<u>0</u>		<u>0</u>		

***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 STRC
Address 1560 Good Hope Pike City Clarksburg State WV Zip 26301

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 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 8/24/2015

API 47-017-06430 Farm Name Holland, Robert L., Jr. Well Number Zellerback Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9-Oct-14	12,772	12,942	60	Marcellus
2	2-Nov-14	12,570	12,740	60	Marcellus
3	3-Nov-14	12,369	12,539	60	Marcellus
4	4-Nov-14	12,167	12,337	60	Marcellus
5	4-Nov-14	11,966	12,136	60	Marcellus
6	4-Nov-14	11,764	11,934	60	Marcellus
7	5-Nov-14	11,563	11,733	60	Marcellus
8	5-Nov-14	11,362	11,531	60	Marcellus
9	7-Nov-14	11,160	11,330	60	Marcellus
10	7-Nov-14	10,959	11,129	60	Marcellus
11	8-Nov-14	10,757	10,927	60	Marcellus
12	8-Nov-14	10,556	10,726	60	Marcellus
13	8-Nov-14	10,354	10,524	60	Marcellus
14	9-Nov-14	10,153	10,323	60	Marcellus
15	9-Nov-14	9,951	10,121	60	Marcellus
16	10-Nov-14	9,750	9,920	60	Marcellus
17	10-Nov-14	9,549	9,718	60	Marcellus
18	11-Nov-14	9,347	9,517	60	Marcellus
19	15-Nov-14	9,146	9,315	60	Marcellus
20	16-Nov-14	8,944	9,114	60	Marcellus
21	16-Nov-14	8,743	8,913	60	Marcellus
22	17-Nov-14	8,541	8,711	60	Marcellus
23	17-Nov-14	8,340	8,510	60	Marcellus
24	18-Nov-14	8,138	8,308	60	Marcellus
25	18-Nov-14	7,937	8,107	60	Marcellus
26	19-Nov-14	7,735	7,905	60	Marcellus
27	19-Nov-14	7,534	7,704	60	Marcellus
28	20-Nov-14	7,333	7,502	60	Marcellus
29	20-Nov-14	7,131	7,301	60	Marcellus
30	20-Nov-14	6,930	7,100	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	2-Nov-14	67.0	6,481	6,069	4,617	241,680	6,501	N/A
2	3-Nov-14	57.9	6,466	5,625	6,130	198,500	6,254	N/A
3	3-Nov-14	65.0	6,514	5,311	5,068	240,980	6,378	N/A
4	4-Nov-14	64.4	6,424	5,955	5,997	239,850	6,391	N/A
5	4-Nov-14	65.0	6,659	5,604	5,121	237,080	6,411	N/A
6	5-Nov-14	64.0	6,583	5,500	4,950	236,370	6,391	N/A
7	5-Nov-14	64.7	6,545	5,375	5,583	239,750	6,319	N/A
8	5-Nov-14	62.0	6,436	5,561	4,874	115,149	6,344	N/A
9	7-Nov-14	63.6	7,107	5,404	5,286	160,700	6,240	N/A
10	7-Nov-14	63.0	6,490	5,361	5,132	240,790	6,265	N/A
11	8-Nov-14	64.1	6,491	5,533	5,490	241,945	6,255	N/A
12	8-Nov-14	63.0	6,635	5,346	5,236	210,530	5,875	N/A
13	9-Nov-14	64.0	6,436	5,364	5,114	238,090	6,211	N/A
14	9-Nov-14	63.8	6,300	5,343	5,822	238,490	6,201	N/A
15	9-Nov-14	63.0	6,185	5,497	4,996	242,030	6,170	N/A
16	10-Nov-14	63.7	6,146	5,440	5,718	240,825	6,174	N/A
17	10-Nov-14	60.0	6,749	6,083	5,211	102,800	6,134	N/A
18	15-Nov-14	64.5	6,402	6,391	6,305	242,720	6,160	N/A
19	16-Nov-14	63.0	6,170	5,432	5,121	242,750	6,109	N/A
20	16-Nov-14	64.2	6,374	5,633	5,522	242,425	6,091	N/A
21	16-Nov-14	64.0	6,142	4,878	5,658	242,750	6,071	N/A
22	17-Nov-14	64.0	6,127	5,279	5,293	243,490	6,049	N/A
23	17-Nov-14	63.0	6,264	5,701	5,382	240,150	6,034	N/A
24	18-Nov-14	62.0	6,219	5,264	4,828	237,000	6,015	N/A
25	19-Nov-14	62.0	6,231	5,468	5,060	239,250	5,997	N/A
26	19-Nov-14	65.0	6,183	5,350	4,860	242,350	5,982	N/A
27	19-Nov-14	63.0	6,173	6,162	5,252	239,500	5,966	N/A
28	20-Nov-14	63.0	6,147	5,572	5,461	242,100	5,942	N/A
29	20-Nov-14	65.0	6,096	6,073	5,375	240,250	5,935	N/A
30	21-Nov-14	64.0	6,145	5,329	4,202	243,660	5,905	N/A
AVG=		63.5	6,377	5,563	5,289	6,803,954	184,770	TOTAL

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API 47-017-06430 Farm Name Holland, Robert L., Jr. Well Number Zellerback 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	56'	N/A	56'	N/A
Shale/ Siltstone	0	221	0	221
Sandstone	est. 221	241	est. 221	241
Shale/ Siltstone	est. 241	381	est. 241	381
Coal	est. 381	401	est. 381	401
Siltstone	est. 401	441	est. 401	441
Shale/ Limestone	est. 441	561	est. 441	561
Sandstone/ Siltstone	est. 561	621	est. 561	621
Shale/ Siltstone	est. 621	761	est. 621	761
Limestone	est. 761	941	est. 761	941
Siltstone / Trace Coal/ Shale	est. 941	1381	est. 941	1381
Sandstone	est. 1381	1401	est. 1381	1401
Shale/ Siltstone/ Trace Coal	est. 1401	1621	est. 1401	1621
Sandstone/ Siltstone	est. 1621	1701	est. 1621	1701
Shale/ Siltstone/ Trace Coal	est. 1701	1741	est. 1701	1741
Shale/ Siltstone	est. 1741	1960	est. 1741	1960
Big Lime	1960	2046	1960	2046
Big Injun	2046	2448	2046	2448
Gantz Sand	2448	2551	2448	2551
Fifty Foot Sandstone	2551	2636	2551	2636
Gordon	2636	3030	2636	3030
Fifth Sandstone	3030	3103	3030	3103
Bayard	3103	3367	3103	3367
Speechley	3367	4075	3367	4075
Baltown	4075	4513	4075	4513
Bradford	4513	4943	4513	4943
Benson	4943	5213	4943	5214
Alexander	5213	5368	5214	5369
Elk	5368	5853	5369	5856
Rhinestreet	5853	6053	5856	6091
Sycamore	6053	6217	6091	6410
Middlesex	6217	6334	6410	6677
Burkett	6334	6368	6677	6783
Tully	6368	6399	6783	6891
Marcellus	6399	NA	6891	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:	11/2/2014
Job End Date:	11/21/2014
State:	West Virginia
County:	Doddridge
API Number:	47-017-06430-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Zellerback Unit 1H
Longitude:	-80.87283300
Latitude:	39.27343100
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,560
Total Base Water Volume (gal):	7,760,340
Total Base Non Water Volume:	348,696



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	90.12501	
Sand	U.S. Well Services, LLC	Proppant	Crystalline Silica, quartz	14808-60-7	100.00000	9.47458	
LGC-15	U.S. Well Services, LLC	Gelling Agents	Guar Gum	9000-30-0	50.00000	0.07662	
			Petroleum Distillates	64742-47-8	60.00000	0.07257	
			Suspending agent (solid)	14808-60-7	3.00000	0.01172	
			Surfactant	68439-51-0	3.00000	0.00460	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid	Water	7732-18-5	87.50000	0.09517	
			Hydrogen Chloride	7647-01-1	18.00000	0.02273	
WFRA-405	U.S. Well Services, LLC	Friction Reducer	Water	7732-18-5	40.00000	0.02722	
			Anionic Polyacrylamide	Proprietary	40.00000	0.02722	
			Petroleum Distillates	64742-47-8	40.00000	0.02191	
			Crystalline Salt	12125-02-9	5.00000	0.00340	

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SI-1100	U.S. Well Services	Scale Inhibitor	Ethoxylated alcohol blend	Proprietary	5.00000	0.00340
			Di Water	7732-18-5	80.00000	0.01016
			Ethylene Glycol	107-21-1	40.00000	0.00574
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	10.00000	0.00172
			2-Phosphonobutane 1,2,4 tricarboxylic salt	37971-36-1	10.00000	0.00164
			hexamethylenediamine tetra (methylene phosphonic acid)	38820-59-6	10.00000	0.00159
			Copolymer of Maleic and Acrylic acid	26677-99-6	10.00000	0.00150
			bis (hexamethylene) tramine penta (methylene phosphonic acid) - phosphate acid	40623-75-4	10.00000	0.00146
			Acrylic polymer	52255-49-9	5.00000	0.00064
K-BAC 1020	U.S. Well Services, LLC	Anti-Bacterial Agent				
			2,2-dibromo-3-nitropropanamide	10222-01-2	20.00000	0.00428
			Deionized Water	7732-18-5	28.00000	0.00244
AP One	U.S. Well Services, LLC	Gel Breakers				
			Ammonium Persulfate	7727-54-0	100.00000	0.00230
AI-301	U.S. Well Services, LLC	Acid Corrosion Inhibitors				
			Diethylene Glycol	111-46-6	30.00000	0.00015
			Methenamine	100-97-0	20.00000	0.00012
			Polyethylene polyamine	68603-67-8	10.00000	0.00005
			Hydrogen Chloride	7647-01-0	10.00000	0.00005
			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°17'30"

11,232'

7,886' TO BOTTOM HOLE

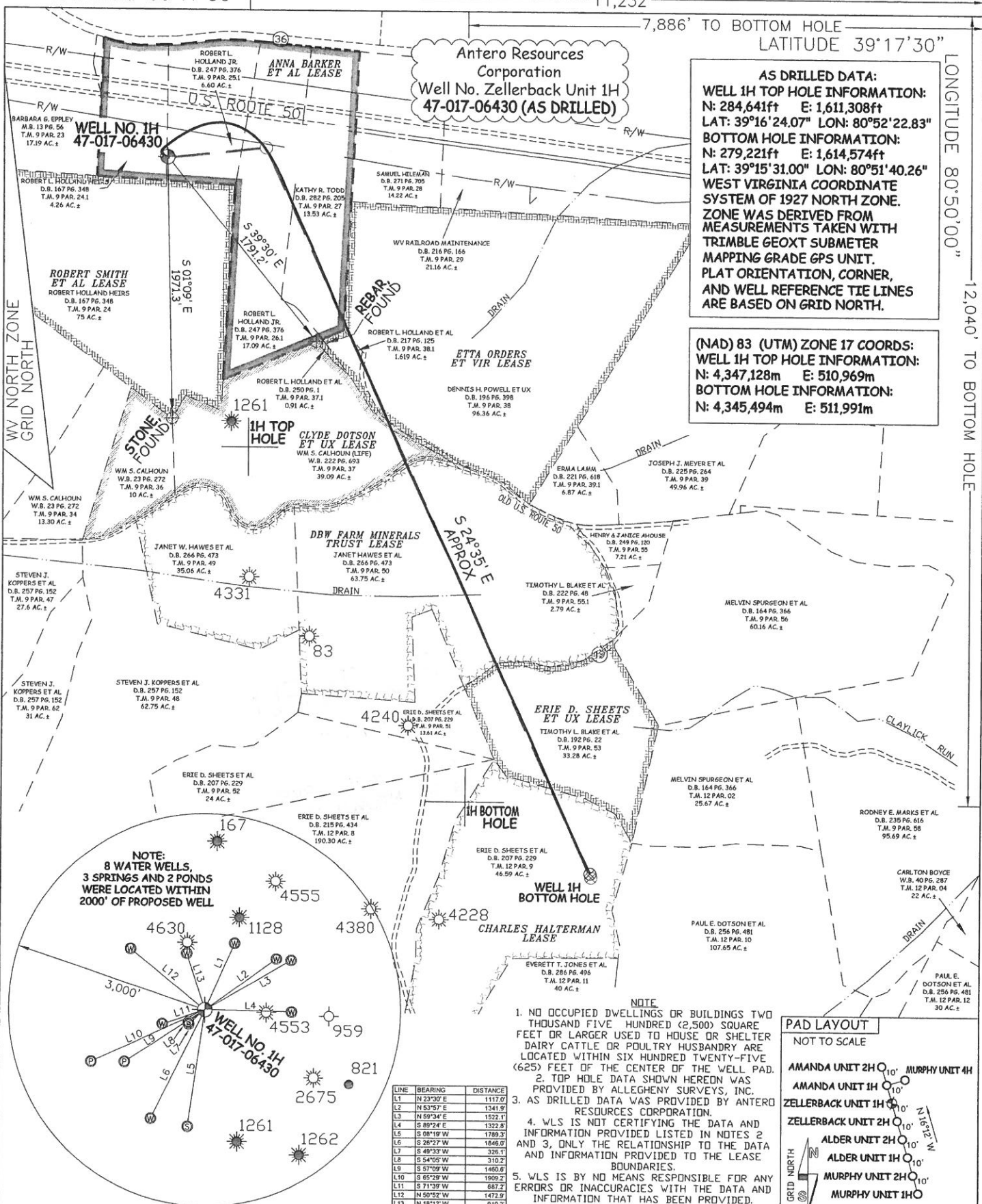
LATITUDE 39°17'30"

LONGITUDE 80°50'00"

6,670'

12,040' TO BOTTOM HOLE

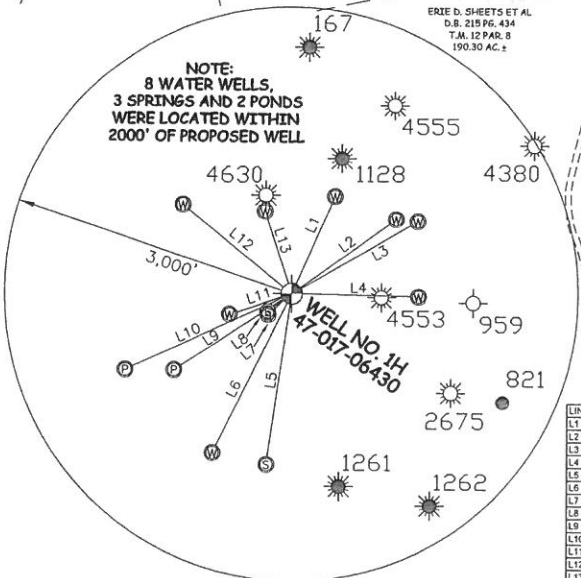
LONGITUDE 80°50'00"



AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
 N: 284,641ft E: 1,611,308ft
 LAT: 39°16'24.07" LON: 80°52'22.83"
BOTTOM HOLE INFORMATION:
 N: 279,221ft E: 1,614,574ft
 LAT: 39°15'31.00" LON: 80°51'40.26"
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: 4,347,128m E: 510,969m
BOTTOM HOLE INFORMATION:
 N: 4,345,494m E: 511,991m

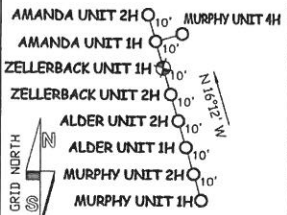
NOTE:
 8 WATER WELLS,
 3 SPRINGS AND 2 PONDS
 WERE LOCATED WITHIN
 2000' OF PROPOSED WELL



LINE	BEARING	DISTANCE
L1	N 23°30' E	1117.0'
L2	N 53°57' E	1341.9'
L3	N 59°34' E	1522.1'
L4	S 85°24' E	1322.8'
L5	S 08°19' W	1769.3'
L6	S 28°27' W	1846.0'
L7	S 49°33' W	326.1'
L8	S 54°05' W	316.2'
L9	S 57°09' W	1460.6'
L10	S 65°29' W	1909.2'
L11	S 71°39' W	687.2'
L12	N 50°52' W	1472.9'
L13	N 18°12' W	910.2'

- 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.

PAD LAYOUT
 NOT TO SCALE



JOB # 13-061WA
 DRAWING # ZELLERBACK1HAD
 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 990' ORIGINAL - 989' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER
 QUADRANGLE WEST UNION 7.5' DISTRICT CENTRAL COUNTY DODDRIDGE

SURFACE OWNER ROBERT L. HOLLAND JR. ACREAGE 6.60 ACRES +/-
 OIL & GAS ROYALTY OWNER ANNA BARKER ET AL; ETTA ORDERS ET VIR; CLYDE DOTSON ET UX; LEASE ACREAGE 127 ACRES±; 100 ACRES±; 50 ACRES±;
 DBW FARM MINERALS TRUST; ERIE D. SHEETS ET UX; CHARLES HALTERMAN 98 ACRES±; 32.7 ACRES±; 47.17 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
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,560' TVD 13,034' MD

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

COUNTY NAME PERMIT