

JUN 23 2015

WV GEOLOGICAL SURVEY
MORGANTOWN, WV

WR-35
Rev. 8/23/13

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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 - 085 - 10027 County Ritchie District Clay
Quad Pennsboro 7.5' Pad Name Annie Horizontal Pad Field/Pool Name ----
Farm name Annie Haymond (Life) et al Well Number Belle Unit 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street 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 4,353,116m Easting 506,435m
Landing Point of Curve Northing 4,353,226.72m Easting 506,220.18m
Bottom Hole Northing 4,355,332m Easting 504,576m

Elevation (ft) 1004' 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 5/9/2013 Date drilling commenced 3/4/2014 Date drilling ceased 6/2/2014
Date completion activities began 6/30/2014 Date completion activities ceased 10/12/2014
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 51', 216' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2210', 5202' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 176', 316', 516', 976', 1056', 1716' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: _____

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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	50#/H-40	N/A	Y
Surface	17-1/2"	13-3/8"	399'	New	48#/H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2710'	New	36#/J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	15,519'	New	23#/P-110	N/A	Y
Tubing		2-3/8"	6455'		4.7#/N-80	N/A	
Packer type and depth set		N/A					

Comment Details Left BHA (Bottom Hole Assembly) and 58' of drill pipe in hole. Top of fish is at 15,549'.

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 Cu. Ft.	0'	8 hrs
Surface	Class A	460 sx	15.6	1.18	277 Cu. Ft.	0'	8 hrs
Coal							
Intermediate 1	Class A	1068 sx	15.6	1.18	858 Cu. Ft.	0'	8 hrs
Intermediate 2							
Intermediate 3							
Production	Class H	800 sx (Lead), 1461 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.44 (Lead), 1.80 (Tail)	3042 Cu. Ft.	~500' into Intermediate Casing	8 hrs
Tubing							

Drillers TD (ft) 15,695' MD, 7272' TVD (BHL), 6355' TVD (Deepest Point Drilled) Loggers TD (ft) 15,647' MD

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 5610'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Belle Unit 3H API# 47-085-10029). Please reference the wireline logs submitted with Form WR-35 for the Belle 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

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 N/A

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
*PLEASE SEE ATTACHED EXHIBIT 1					

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)
*PLEASE SEE ATTACHED EXHIBIT 2								

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6299' (Top) TVD	6501' (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 3808 mcfpd Oil 82 bpd NGL --- bpd Water 813 bpd GAS MEASURED BY Estimated Orifice Pilot

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

*PLEASE SEE ATTACHED EXHIBIT 3

Please insert additional pages as applicable.

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

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

Cementing Company Allied Oil & Gas Services, LLC
Address 1036 East Main Street City Bridgeport State WV Zip 26330

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

Please insert additional pages as applicable.

Completed by Natalie Komp Telephone 303-357-6820
Signature *Natalie Komp* Title Permitting Agent Date 6/12/2015

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EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	30-Jun-14	15227'	15354'	60	Marcellus
2	17-Aug-14	15078'	15204'	60	Marcellus
3	17-Aug-14	14928'	15055'	60	Marcellus
4	17-Aug-14	14778'	14905'	60	Marcellus
5	18-Aug-14	14628'	14755'	60	Marcellus
6	18-Aug-14	14479'	14606'	60	Marcellus
7	20-Aug-14	14329'	14456'	60	Marcellus
8	20-Aug-14	14179'	14306'	60	Marcellus
9	20-Aug-14	14030'	14156'	60	Marcellus
10	20-Aug-14	13880'	14007'	60	Marcellus
11	21-Aug-14	13730'	13857'	60	Marcellus
12	21-Aug-14	13581'	13707'	60	Marcellus
13	21-Aug-14	13431'	13558'	60	Marcellus
14	22-Aug-14	13281'	13408'	60	Marcellus
15	22-Aug-14	13131'	13258'	60	Marcellus
16	22-Aug-14	12982'	13108'	60	Marcellus
17	23-Aug-14	12832'	12959'	60	Marcellus
18	23-Aug-14	12682'	12809'	60	Marcellus
19	23-Aug-14	12533'	12659'	60	Marcellus
20	23-Aug-14	12388'	12510'	60	Marcellus
21	24-Aug-14	12233'	12360'	60	Marcellus
22	24-Aug-14	12084'	12210'	60	Marcellus
23	24-Aug-14	11934'	12061'	60	Marcellus
24	24-Aug-14	11784'	11911'	60	Marcellus
25	25-Aug-14	11634'	11761'	60	Marcellus
26	25-Aug-14	11485'	11611'	60	Marcellus
27	25-Aug-14	11335'	11462'	60	Marcellus
28	25-Aug-14	11185'	11312'	60	Marcellus
29	26-Aug-14	11036'	11162'	60	Marcellus
30	26-Aug-14	10886'	11013'	60	Marcellus
31	26-Aug-14	10736'	10863'	60	Marcellus
32	27-Aug-14	10587'	10713'	60	Marcellus
33	27-Aug-14	10437'	10564'	60	Marcellus
34	27-Aug-14	10287'	10414'	60	Marcellus
35	27-Aug-14	10137'	10264'	60	Marcellus
36	27-Aug-14	9988'	10114'	60	Marcellus
37	28-Aug-14	9838'	9965'	60	Marcellus
38	29-Aug-14	9688'	9815'	60	Marcellus
39	29-Aug-14	9539'	9665'	60	Marcellus
40	29-Aug-14	9389'	9516'	60	Marcellus
41	30-Aug-14	9239'	9366'	60	Marcellus
42	30-Aug-14	9090'	9216'	60	Marcellus
43	30-Aug-14	8940'	9067'	60	Marcellus
44	30-Aug-14	8790'	8917'	60	Marcellus
45	31-Aug-14	8640'	8767'	60	Marcellus
46	31-Aug-14	8491'	8617'	60	Marcellus
47	31-Aug-14	8341'	8468'	60	Marcellus
48	1-Sep-14	8191'	8318'	60	Marcellus
49	1-Sep-14	8042'	8168'	60	Marcellus
50	1-Sep-14	7892'	8019'	60	Marcellus
51	1-Sep-14	7742'	7869'	60	Marcellus
52	1-Sep-14	7593'	7719'	60	Marcellus
53	2-Sep-14	7443'	7570'	60	Marcellus
54	2-Sep-14	7293'	7420'	60	Marcellus
55	2-Sep-14	7143'	7270'	60	Marcellus
56	2-Sep-14	6994'	7120'	60	Marcellus
57	3-Sep-14	6844'	6971'	60	Marcellus
58	3-Sep-14	6694'	6821'	60	Marcellus
59	3-Sep-14	6545'	6671'	60	Marcellus

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API 47-085-10027 Farm Name Annie Haymond (Life) et al. Well Number Belle 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 (bbbls)	Amount of Nitrogen/ other (units)
1	10-Jul-14	77.9	7,808	6,108	5,557	184,800	6,059	N/A
2	17-Aug-14	41.1	8,203	7,449	6,255	2,900	6,162	N/A
3	18-Aug-14	65.6	6,881	6,263	3,890	185,535	6,561	N/A
4	18-Aug-14	69.3	6,819	5,685	4,975	178,300	6,496	N/A
5	18-Aug-14	71.6	7,151	5,779	4,000	220,900	6,185	N/A
6	18-Aug-14	50.8	6,813	6,321	3,992	106,000	8,915	N/A
7	20-Aug-14	67.1	7,261	6,427	4,503	172,100	6,398	N/A
8	20-Aug-14	67.6	6,826	5,893	4,756	133,800	6,306	N/A
9	20-Aug-14	64.9	7,587	5,636	4,754	44,100	6,311	N/A
10	20-Aug-14	69.7	7,047	5,706	4,824	115,500	5,526	N/A
11	21-Aug-14	68.3	6,805	5,603	4,337	225,400	6,652	N/A
12	21-Aug-14	68.8	6,794	5,708	4,783	179,400	5,916	N/A
13	21-Aug-14	69.4	7,163	5,620	4,932	191,400	6,507	N/A
14	22-Aug-14	64.6	6,655	5,172	4,916	136,400	6,569	N/A
15	22-Aug-14	63.5	6,817	5,655	4,786	166,000	6,581	N/A
16	22-Aug-14	70.6	7,253	5,925	5,114	119,600	5,938	N/A
17	23-Aug-14	67.8	7,372	5,608	5,063	173,500	6,047	N/A
18	23-Aug-14	60.6	6,434	5,583	5,282	221,800	6,550	N/A
19	23-Aug-14	60.7	6,299	5,601	4,700	200,100	5,878	N/A
20	23-Aug-14	59.9	6,519	5,522	5,276	194,000	5,749	N/A
21	24-Aug-14	42.9	8,043	5,764	5,283	2,200	5,873	N/A
22	24-Aug-14	55.7	6,749	5,411	4,191	90,000	6,432	N/A
23	24-Aug-14	61.5	6,291	5,630	4,637	187,400	6,382	N/A
24	24-Aug-14	60.6	6,238	5,413	5,115	196,000	6,284	N/A
25	25-Aug-14	60.9	6,210	5,856	4,963	227,200	5,773	N/A
26	25-Aug-14	61.2	5,979	5,332	4,820	215,100	6,652	N/A
27	25-Aug-14	63.9	6,302	5,613	5,450	223,200	5,637	N/A
28	25-Aug-14	65.0	6,446	5,801	5,296	211,000	5,995	N/A
29	26-Aug-14	17.6	8,185	6,211	4,904	2,100	5,464	N/A
30	26-Aug-14	59.6	6,578	5,996	4,384	112,200	5,720	N/A
31	26-Aug-14	61.6	6,467	6,028	4,761	227,700	5,672	N/A
32	27-Aug-14	62.6	6,604	6,548	5,035	226,200	5,682	N/A
33	27-Aug-14	56.1	6,395	6,416	5,086	155,200	5,840	N/A
34	27-Aug-14	61.9	6,196	5,900	5,095	224,600	5,514	N/A
35	27-Aug-14	64.7	6,045	5,471	5,495	222,300	5,421	N/A
36	27-Aug-14	65.4	6,432	5,831	4,710	210,500	6,189	N/A
37	29-Aug-14	64.7	6,570	5,581	5,147	225,200	5,501	N/A
38	29-Aug-14	64.7	6,570	5,581	5,147	225,200	5,501	N/A
39	29-Aug-14	60.6	6,248	5,466	4,725	205,700	5,817	N/A
40	29-Aug-14	61.5	6,359	5,484	4,895	217,000	5,457	N/A
41	30-Aug-14	60.6	6,189	5,319	4,880	178,600	5,651	N/A
42	30-Aug-14	67.1	6,469	5,356	4,865	192,800	5,884	N/A
43	30-Aug-14	64.0	6,530	5,603	4,205	226,300	5,529	N/A
44	30-Aug-14	67.5	6,206	5,594	4,724	227,200	5,404	N/A
45	31-Aug-14	66.4	6,440	5,445	4,963	182,000	5,639	N/A
46	31-Aug-14	64.6	6,186	5,758	4,713	225,400	5,604	N/A
47	31-Aug-14	68.5	6,400	5,281	4,570	194,500	4,992	N/A
48	1-Sep-14	63.7	6,243	5,209	5,097	238,700	5,290	N/A
49	1-Sep-14	64.4	6,235	5,427	5,321	212,400	5,944	N/A
50	1-Sep-14	65.6	6,177	5,489	4,819	218,700	5,993	N/A
51	1-Sep-14	64.1	6,056	6,006	4,883	226,200	5,687	N/A
52	1-Sep-14	66.7	6,244	5,603	5,290	224,900	5,349	N/A
53	2-Sep-14	62.8	5,924	5,508	4,632	226,300	5,501	N/A
54	2-Sep-14	62.2	6,212	6,057	4,745	188,700	5,332	N/A
55	2-Sep-14	63.8	5,917	5,706	4,869	222,400	5,231	N/A
56	2-Sep-14	64.6	5,928	5,720	4,905	221,300	5,291	N/A
57	3-Sep-14	59.5	5,889	5,676	4,523	159,100	5,793	N/A
58	3-Sep-14	62.8	5,915	5,515	4,845	222,800	5,432	N/A
59	3-Sep-14	62.7	5,931	5,676	4,849	224,100	5,415	N/A
AVG=		62.6	6,585	5,738	4,873	10,769,935	349,073	TOTAL

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API 47-085-10027 Farm Name Annie Haymond (Life) et al Well Number Belle 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	51'	N/A	51'	N/A
Fresh Water	216'	N/A	216'	N/A
Silty Shale	0	176	0	176
Coal	est. 176	236	est. 176	236
Sandstone	est. 236	316	est. 236	316
Coal	est. 316	376	est. 316	376
Sandstone	est. 376	396	est. 376	396
Silty Shale	est. 396	416	est. 396	416
Sandstone	est. 416	516	est. 416	516
Coal	est. 516	576	est. 516	576
Sandstone	est. 576	616	est. 576	616
Sandy Shale	est. 616	736	est. 616	736
Shale	est. 736	776	est. 736	776
Sandy Siltstone	est. 776	876	est. 776	876
Shale	est. 876	926	est. 876	926
Sandstone	est. 926	976	est. 926	976
Coal	est. 976	1,036	est. 976	1,036
Shale	est. 1036	1,056	est. 1036	1,056
Coal	est. 1056	1,246	est. 1056	1,246
Shale	est. 1246	1,336	est. 1246	1,336
Sandstone	est. 1336	1,416	est. 1336	1,416
Shale	est. 1416	1,516	est. 1416	1,516
Sandy Siltstone/Coal	est. 1516	1,596	est. 1516	1,596
Silty Sandstone	est. 1596	1,716	est. 1596	1,716
Coal	est. 1716	1,776	est. 1716	1,776
Sandy Shale/Coal	est. 1776	1,850	est. 1776	1,850
Big Lime	1,850	1,993	1,850	1,993
Big Injun	1,993	2,769	1,993	2,769
Fifty Foot Sandstone	2,769	2,840	2,769	2,840
Gordon	2,840	2,934	2,840	2,934
Bayard	2,934	3,419	2,934	3,421
Warren	3,419	3,992	3,421	3,994
Baltown	3,992	4,481	3,994	4,483
Bradford	4,481	4,846	4,483	4,848
Benson	4,846	5,101	4,848	5,103
Alexander	5,101	5,408	5,103	5,410
Elk	5,408	5,712	5,410	5,714
Rhinstreet	5,712	6,040	5,714	6,071
Sycamore	6,040	6,138	6,071	6,267
Middlesex	6,138	6,247	6,267	6,366
Burkett	6,247	6,275	6,366	6,429
Tully	6,275	6,299	6,429	6,501
Marcellus	6,299	NA	6,501	NA

*Please note Antero determines shallow 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



Frac Focus
Chemical Disclosure Registry



Job Start Date:	7/10/2014
Job End Date:	9/3/2014
State:	West Virginia
County:	Ritchie
API Number:	47-085-10027-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Belle Unit 1H
Longitude:	-80.92551400
Latitude:	39.32735000
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,331
Total Base Water Volume (gal):	14,661,066
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	Water					
WV Specific 20/40 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia		7732-18-5	100.00000	91.64068	
			Crystalline Silica, quartz	14808-60-7	99.90000	5.21172	
			Aluminum Oxide	1344-28-1	1.10000	0.05739	
			Titanium Oxide	13463-67-7	0.10000	0.00522	
			Iron Oxide	1309-37-1	0.10000	0.00522	
WV Specific 40/70 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	2.30068	
			Aluminum Oxide	1344-28-1	1.10000	0.02533	
			Iron Oxide	1309-37-1	0.10000	0.00230	
			Titanium Oxide	13463-67-7	0.10000	0.00230	
WV Specific 100 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	0.55922	
			Aluminum Oxide	1344-28-1	1.10000	0.00616	

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				Iron Oxide	1309-37-1	0.10000	0.00056	
LSG-100L	Nabors Completion and Production Services	Gelling Agents	Titanium Oxide	13463-67-7	0.10000	0.00056		
HCl Acid (12.5-18.0%) 22 Baume	Nabors Completion and Production Services	Bulk Acid	Petroleum Distillates	64742-47-8	70.00000	0.08392		
WFR-6W	Nabors Completion and Production Services	Friction Reducer	Water	7732-18-5	100.00000	0.02326		
HCl Acid (12.5-18.0%) 22 Baume	Nabors Completion and Production Services	Bulk Acid	Water	7732-18-5	40.00000	0.02040		
WFR-3B	Nabors Completion and Production Services	Friction Reducer	22° Baume Hydrochloric Acid	7647-01-0	100.00000	0.01903		
KR-153SL	Nabors Completion and Production Services	Biocides						
			Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8	30.00000	0.00776		
			Ethoxylated alcohols	68002-97-1	15.00000	0.00388		
			Ethoxylated oleylamine	26635-93-8	5.00000	0.00129		
			Polyethylene-Glycol	25322-68-3	50.00000	0.00779		
			2,2-dibromo-3-nitropropionamide	10222-01-2	20.00000	0.00312		
Super GREEN SOLV-M	Nabors Completion and Production Services	Paraffin & Scale Additives						
			Aliphatic Hydrocarbons	Proprietary	95.00000	0.00386		
			Dodecane	Proprietary	14.00000	0.00057		
			tetradecane	Proprietary	11.00000	0.00045		
			Tridecane	Proprietary	9.00000	0.00037		
			Undecane	Proprietary	8.00000	0.00033		
Super TSC 2 LT	Nabors Completion and Production Services	Paraffin & Scale Additives						
			Bis(hexamethylene)triamine	35657-77-3	15.00000	0.00280		
			Penta (methylene phosphonic acid), Sodium Salt					
OB-2 LT	Nabors Completion and Production Services	Gel Breakers						
			Ammonium Persulfate	7727-54-0	85.00000	0.00092		
			Crystalline Silica (in the form of quartz)	14808-60-7	10.00000	0.00011		
Acid Inhibitor 2 (AI-2)	Nabors Completion and Production Services	Acid Corrosion Inhibitors						

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			Isopropyl Alcohol	67-63-0	40.00000	0.00028
			Propargyl Alcohol	107-19-7	40.00000	0.00028
			Glycol Ethers	111-46-6	40.00000	0.00028
			Ethoxylated Nonylphenol	68412-54-4	13.00000	0.00009
			Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	10.00000	0.00007
EB-4L	Nabors Completion and Production Services	Gel Breakers				
			Ethylene Glycol	107-21-1	40.00000	0.00020
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.						
		Other Ingredients				
	Nabors Completion and Production Services					
			guar gum	9000-30-0	50.00000	0.05994
			Copolymer	Proprietary	100.00000	0.05100
			Water	7732-18-5	90.00000	0.01680
			Isoparaffinic Solvent	64742-47-8	26.00000	0.01326
			Water	7732-18-5	80.00000	0.01246
			Anionic Polyacrylamide	910644-97-2	40.00000	0.01034
			Water	7732-18-5	40.00000	0.01034
			Propylene glycol	57-55-6	15.00000	0.00388
			Crystalline Silica (in the form of quartz)	14808-60-7	2.00000	0.00240
			Surfactant	68439-51-0	2.00000	0.00240
			Ethylene Glycol	107-21-1	4.00000	0.00204
			Ethoxylated alcohols	Proprietary	4.00000	0.00204
			Surfactant Blend	Proprietary	3.00000	0.00153
			Proprietary	Proprietary	2.00000	0.00052
			Sugar	57-50-1	100.00000	0.00049
			Proprietary	Proprietary	100.00000	0.00049
			Water	7732-18-5	48.00000	0.00033
			Water	7732-18-5	100.00000	0.00024
			Alkali Chloride salt	Proprietary	15.00000	0.00016
			2-Butoxyethanol	111-76-2	13.00000	0.00009
			2-Propenamide as residual	79-06-1	0.10000	0.00005
			Dioxane	123-91-1	1.00000	0.00001
			Proprietary	Proprietary	1.00000	0.00001
			Proprietary	Proprietary	1.00000	0.00001
			Proprietary	Proprietary	1.00000	0.00001
			Proprietary	Proprietary	1.00000	0.00001
			Organophilic Clay	68953-58-2	1.00000	0.00001

* 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°20'00" 2,503'

LATITUDE 39°22'30"

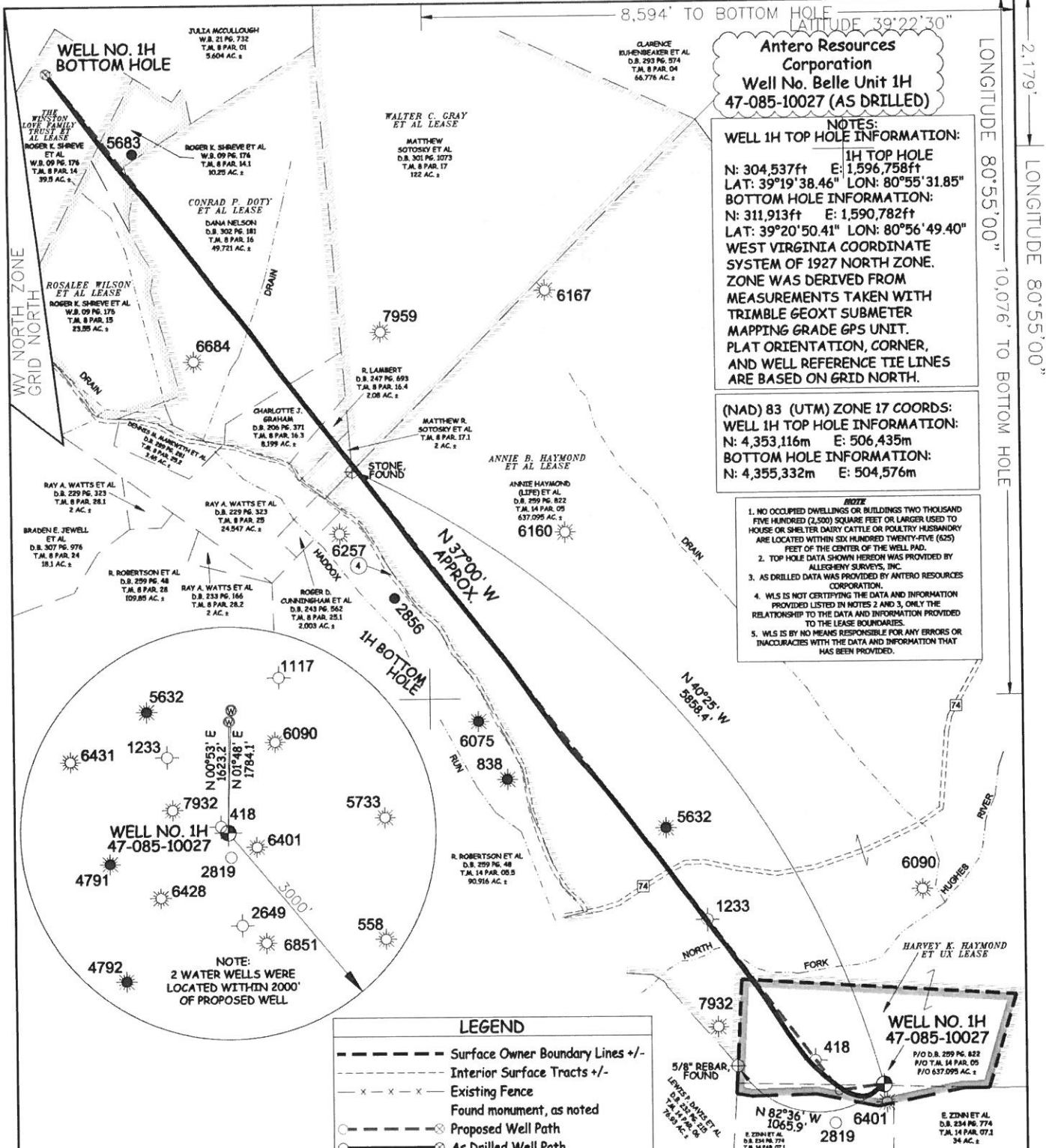
LONGITUDE 80°55'00" 10,076' TO BOTTOM HOLE
LONGITUDE 80°55'00" 2,179'

Antero Resources Corporation
Well No. Belle Unit 1H
47-085-10027 (AS DRILLED)

NOTES:
WELL 1H TOP HOLE INFORMATION:
1H TOP HOLE
N: 304,537ft E: 1,596,758ft
LAT: 39°19'38.46" LON: 80°55'31.85"
BOTTOM HOLE INFORMATION:
N: 311,913ft E: 1,590,782ft
LAT: 39°20'50.41" LON: 80°56'49.40"
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: 4,353,116m E: 506,435m
BOTTOM HOLE INFORMATION:
N: 4,355,332m E: 504,576m

- NOTE**
- 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.
 - TOP HOLE DATA SHOWN HEREBY WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
 - AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
 - 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.
 - WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



LEGEND

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

JOB # **12-160WA**
DRAWING # **BELLE1H**
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
P.O. BOX 17
PENNSBORO, WV 26415



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 **1,005' ORIGINAL - 1,004' AS-DRILLED** WATERSHED **NORTH FORK HUGHES RIVER**
QUADRANGLE **PENNSBORO 7.5'** DISTRICT **CLAY** COUNTY **RITCHIE**

SURFACE OWNER **ANNIE HAYMOND (LIFE) ET AL** ACREAGE **637.095 ACRES +/-**
OIL & GAS ROYALTY OWNER **HARVEY K. HAYMOND ET UX; ANNIE HAYMOND ET AL; WALTER C. GRAY ET AL; LEASE CONRAD P. DOTY ET AL; ROSALEE WILSON ET AL; THE WINSTON LOVE FAMILY TRUST ET AL** ACREAGE **33 ACRES +/-; 639.06 ACRES +/-; 124 ACRES +/-; 60 ACRES +/-; 23.55 ACRES +/-; 39.5 ACRES +/-**

PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___
OTHER PHYSICAL CHANGE IN WELL (SPECIFY) **(X) AS DRILLED**

PLUG & ABANDON ___ CLEAN OUT & REPLUG ___ ESTIMATED DEPTH **6,330' TVD 15,695' MD**

TARGET FORMATION **MARCELLUS**

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