

JUN 08 2015

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 47-085-10029 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 3H  
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 506,441m  
Landing Point of Curve Northing 4,353,440.71m Easting 506,577.81m  
Bottom Hole Northing 4,355,270m Easting 505,137m

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 5/10/2013 Date drilling commenced 3/4/2014 Date drilling ceased 4/10/2014  
Date completion activities began 7/5/2014 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 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', 1036', 1416' 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	51#/H-40	N/A	Y
Surface	17-1/2"	13-3/8"	357'	New	48#/H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2675'	New	36#/J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	14,570'	New	23#/P-110	N/A	Y
Tubing		2-3/8"	6481'		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 <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	100 sx	15.6	1.18	38 Cu. Ft.	0'	8 hrs
Surface	Class A	418 sx	15.6	1.18	248 Cu. Ft.	0'	8 hrs
Coal							
Intermediate 1	Class A	1046 sx	15.6	1.18	838 Cu. Ft.	0'	8 hrs
Intermediate 2							
Intermediate 3							
Production	Class H	817 sx (Lead), 1306 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.44 (Lead), 1.80 (Tail)	2840 Cu. Ft.	-500' into Intermediate Casing	8 hrs
Tubing							

Drillers TD (ft) 14,570' MD, 6336' TVD (BHL), 6345' TVD (Deepest Point Drilled) Loggers TD (ft) 14,523' MD

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

Plug back procedure N/A

Kick off depth (ft) 6017'

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 Chemical & Radioactive

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API 47- 085 - 10029 Farm name Annie Haymond (Life) et al Well number Belle Unit 3H

### PERFORATION RECORD

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

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)
<b>*PLEASE SEE ATTACHED EXHIBIT 2</b>								

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS	
<u>Marcellus</u>	<u>6292' (Top)</u> TVD	<u>6693' (Top)</u> 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 3126 mcfpd Oil 53 bpd NGL ---- bpd Water 482 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 <sub>2</sub> 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 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  Title Permitting Agent Date 6/4/2015

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API 47-085-10029 Farm Name Annie Haymond (Life), et al Well Number Belle Unit 3H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	5-Jul-14	14,353	14,479	60	Marcellus
2	16-Jul-14	14,204	14,330	60	Marcellus
3	18-Sep-14	14,054	14,181	60	Marcellus
4	18-Sep-14	13,905	14,032	60	Marcellus
5	18-Sep-14	13,756	13,882	60	Marcellus
6	19-Sep-14	13,607	13,733	60	Marcellus
7	19-Sep-14	13,457	13,584	60	Marcellus
8	19-Sep-14	13,308	13,435	60	Marcellus
9	19-Sep-14	13,159	13,285	60	Marcellus
10	20-Sep-14	13,010	13,136	60	Marcellus
11	20-Sep-14	12,860	12,987	60	Marcellus
12	20-Sep-14	12,711	12,838	60	Marcellus
13	21-Sep-14	12,562	12,688	60	Marcellus
14	21-Sep-14	12,413	12,539	60	Marcellus
15	21-Sep-14	12,263	12,390	60	Marcellus
16	21-Sep-14	12,114	12,241	60	Marcellus
17	21-Sep-14	11,965	12,091	60	Marcellus
18	22-Sep-14	11,816	11,942	60	Marcellus
19	22-Sep-14	11,666	11,793	60	Marcellus
20	22-Sep-14	11,517	11,644	60	Marcellus
21	22-Sep-14	11,368	11,494	60	Marcellus
22	23-Sep-14	11,219	11,345	60	Marcellus
23	23-Sep-14	11,069	11,196	60	Marcellus
24	23-Sep-14	10,920	11,047	60	Marcellus
25	23-Sep-14	10,771	10,897	60	Marcellus
26	24-Sep-14	10,622	10,748	60	Marcellus
27	24-Sep-14	10,472	10,599	60	Marcellus
28	24-Sep-14	10,323	10,450	60	Marcellus
29	24-Sep-14	10,174	10,300	60	Marcellus
30	25-Sep-14	10,025	10,150	60	Marcellus
31	25-Sep-14	9,875	10,002	60	Marcellus
32	25-Sep-14	9,726	9,853	60	Marcellus
33	25-Sep-14	9,577	9,703	60	Marcellus
34	25-Sep-14	9,428	9,554	60	Marcellus
35	26-Sep-14	9,278	9,405	60	Marcellus
36	26-Sep-14	9,129	9,256	60	Marcellus
37	26-Sep-14	8,980	9,106	60	Marcellus
38	26-Sep-14	8,831	8,957	60	Marcellus
39	26-Sep-14	8,681	8,808	60	Marcellus
40	27-Sep-14	8,532	8,659	60	Marcellus
41	27-Sep-14	8,383	8,509	60	Marcellus
42	27-Sep-14	8,234	8,360	60	Marcellus
43	27-Sep-14	8,084	8,211	60	Marcellus
44	27-Sep-14	7,935	8,062	60	Marcellus
45	27-Sep-14	7,786	7,912	60	Marcellus
46	28-Sep-14	7,637	7,763	60	Marcellus
47	28-Sep-14	7,487	7,614	60	Marcellus
48	28-Sep-14	7,338	7,465	60	Marcellus
49	28-Sep-14	7,189	7,315	60	Marcellus
50	28-Sep-14	7,040	7,166	60	Marcellus
51	29-Sep-14	6,890	7,017	60	Marcellus
52	29-Sep-14	6,741	6,868	60	Marcellus

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## WV GEOLOGICAL SURVEY MORGANTOWN, WV

API 47-085-10029 Farm Name Annie Raymond (Life) et al Well Number Belle Unit 3H

<b>EXHIBIT 2</b>								
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	15-Jul-14	52.6	8,632	6,968	6,987	8,300	5,871	N/A
2	16-Jul-14	69.5	6,846	6,494	5,279	178,800	5,053	N/A
3	18-Sep-14	58.6	6,915	6,252	4,829	188,900	6,643	N/A
4	18-Sep-14	63.9	6,638	5,575	4,598	212,800	6,111	N/A
5	18-Sep-14	63.6	6,719	5,694	3,822	212,700	6,196	N/A
6	19-Sep-14	61.5	6,327	5,918	4,058	204,300	5,889	N/A
7	19-Sep-14	60.8	6,617	6,145	4,533	211,700	5,895	N/A
8	19-Sep-14	65.3	6,923	5,575	4,643	213,200	6,137	N/A
9	19-Sep-14	63.5	6,723	5,722	4,424	211,400	5,969	N/A
10	20-Sep-14	64.9	6,809	5,588	4,734	212,100	5,890	N/A
11	20-Sep-14	61.4	6,453	5,518	4,161	210,000	5,845	N/A
12	20-Sep-14	64.5	6,508	5,830	4,285	212,300	5,861	N/A
13	21-Sep-14	64.8	6,449	5,482	4,150	210,500	5,872	N/A
14	21-Sep-14	64.6	6,502	5,728	4,040	211,500	5,834	N/A
15	21-Sep-14	64.4	6,445	5,947	3,923	212,100	5,819	N/A
16	21-Sep-14	63.8	6,667	5,598	4,806	213,600	5,839	N/A
17	21-Sep-14	63.9	6,570	5,347	4,005	214,000	5,894	N/A
18	22-Sep-14	64.9	6,503	5,955	4,207	210,400	5,761	N/A
19	22-Sep-14	63.8	6,488	5,393	4,407	212,200	5,725	N/A
20	22-Sep-14	65.8	6,491	5,338	3,933	210,300	5,782	N/A
21	22-Sep-14	65.8	6,506	5,466	3,983	215,500	5,802	N/A
22	23-Sep-14	63.7	6,637	5,691	4,494	209,900	5,703	N/A
23	23-Sep-14	60.5	6,562	5,832	4,232	211,500	5,711	N/A
24	23-Sep-14	66.4	6,744	5,850	4,650	213,100	5,776	N/A
25	23-Sep-14	66.4	7,082	5,594	4,629	213,400	5,853	N/A
26	24-Sep-14	64.5	6,467	5,429	4,732	213,400	5,688	N/A
27	24-Sep-14	60.5	6,427	5,471	4,087	210,800	5,577	N/A
28	24-Sep-14	62.7	6,111	5,530	3,696	214,000	5,624	N/A
29	24-Sep-14	64.8	6,772	5,648	4,208	191,600	6,192	N/A
30	25-Sep-14	63.0	6,211	5,612	4,367	215,900	4,551	N/A
31	25-Sep-14	60.5	6,182	5,356	4,464	211,600	5,629	N/A
32	25-Sep-14	61.6	6,182	5,545	4,477	213,400	5,637	N/A
33	25-Sep-14	65.3	6,312	5,703	5,009	215,900	5,569	N/A
34	25-Sep-14	66.0	6,132	5,374	4,083	215,300	5,541	N/A
35	26-Sep-14	62.7	6,159	5,575	4,617	160,200	4,938	N/A
36	26-Sep-14	68.0	6,415	5,630	4,314	216,000	5,510	N/A
37	26-Sep-14	63.7	6,368	5,703	4,442	211,300	5,430	N/A
38	26-Sep-14	69.7	6,437	5,776	4,767	215,300	5,484	N/A
39	26-Sep-14	63.1	6,531	5,466	4,434	197,400	6,011	N/A
40	27-Sep-14	64.8	6,213	5,502	4,625	214,400	5,449	N/A
41	27-Sep-14	73.4	6,277	5,137	4,515	214,500	5,508	N/A
42	27-Sep-14	72.9	6,584	5,521	4,230	213,800	5,464	N/A
43	27-Sep-14	74.8	6,782	5,356	4,376	208,800	5,333	N/A
44	27-Sep-14	71.7	6,349	5,466	4,440	212,600	5,352	N/A
45	27-Sep-14	72.5	6,044	5,265	3,908	214,500	5,375	N/A
46	28-Sep-14	74.9	6,163	5,191	4,278	214,000	5,521	N/A
47	28-Sep-14	75.1	6,226	5,539	4,024	213,100	5,380	N/A
48	28-Sep-14	75.8	6,280	5,082	4,208	214,000	5,392	N/A
49	28-Sep-14	76.4	6,422	5,530	4,676	214,400	5,422	N/A
50	28-Sep-14	75.4	6,708	5,244	5,128	196,400	5,616	N/A
51	29-Sep-14	72.0	6,370	5,377	4,915	210,400	5,267	N/A
52	29-Sep-14	74.2	6,678	5,896	4,556	163,400	5,225	N/A
AVG=		<b>66.1</b>	<b>6,530</b>	<b>5,624</b>	<b>4,450</b>	<b>10,640,900</b>	<b>294,416</b>	TOTAL

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API 47-085-10029 Farm Name Annie Haymond (Life), et al Well Number Belle Unit 3H				
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	216	N/A	216	N/A
Silty Shale	0	176	0	176
Coal	est. 176	236	est. 176	236
Sandy Shale	est. 236	316	est. 236	316
Silty Sandstone	est. 316	376	est. 316	376
Trace Coal	est. 376	396	est. 376	396
Silty Sandstone	est. 396	416	est. 396	416
Limestone	est. 416	516	est. 416	516
Shale	est. 516	576	est. 516	576
Sandy Shale	est. 576	616	est. 576	616
Shale	est. 616	736	est. 616	736
Limey Shale	est. 736	776	est. 736	776
Sandy Shale	est. 776	876	est. 776	876
Siltstone	est. 876	926	est. 876	926
Limestone w/ Trace Coal	est. 926	976	est. 926	976
Shale	est. 976	1,036	est. 976	1,036
Coal	est. 1036	1,056	est. 1036	1,056
Silty Sandstone	est. 1056	1,246	est. 1056	1,246
Sandy Shale	est. 1246	1,336	est. 1246	1,336
Sandstone	est. 1336	1,416	est. 1336	1,416
Coal	est. 1416	1,516	est. 1416	1,516
Siltstone/Shale	est. 1516	1,596	est. 1516	1,596
Sandstone	est. 1596	1,716	est. 1596	1,716
Silty Shale	est. 1716	1,776	est. 1716	1,776
Sandy Siltstone	est. 1776	1,870	est. 1776	1,870
Big Lime	1,870	1,984	1,870	1,984
Big Injun	1,984	2,789	1,984	2,789
Fifty Foot Sandstone	2,789	2,851	2,789	2,851
Gordon	2,851	3,003	2,851	3,003
Bayard	3,003	3,434	3,003	3,434
Warren	3,434	4,019	3,434	4,019
Baltown	4,019	4,502	4,019	4,513
Bradford	4,502	4,881	4,513	4,908
Benson	4,881	5,102	4,908	5,140
Alexander	5,102	5,400	5,140	5,461
Elk	5,400	5,702	5,461	5,779
Rhinestreet	5,702	6,031	5,779	6,136
Sycamore	6,031	6,129	6,136	6,276
Middlesex	6,129	6,239	6,276	6,508
Burkett	6,239	6,268	6,508	6,599
Tully	6,268	6,292	6,599	6,693
Marcellus	6,292	NA	6,693	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**



Job Start Date:	7/15/2014
Job End Date:	9/29/2014
State:	West Virginia
County:	Ritchie
API Number:	47-085-10029-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Belle Unit 3H
Longitude:	-80.92544200
Latitude:	39.32735300
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,345
Total Base Water Volume (gal):	12,365,514
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 40/70 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia	Water	7732-18-5	100.00000	90.48031	
			Crystalline Silica, quartz	14808-60-7	99.90000	5.15554	
			Aluminum Oxide	1344-28-1	1.10000	0.05677	
			Iron Oxide	1309-37-1	0.10000	0.00516	
			Titanium Oxide	13463-67-7	0.10000	0.00516	
WV Specific 30/50 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	3.32545	
			Aluminum Oxide	1344-28-1	1.10000	0.03662	
			Iron Oxide	1309-37-1	0.10000	0.00333	
			Titanium Oxide	13463-67-7	0.10000	0.00333	
WV Specific 100 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia					
			Crystalline Silica, quartz	14808-60-7	99.90000	0.57155	
			Aluminum Oxide	1344-28-1	1.10000	0.00629	



				Titanium Oxide	13463-67-7	0.10000	0.00057	
WV Specific 20/40 mesh Sand	Nabors Completion and Production Services	Sand - Bulk - West Virginia	Iron Oxide	1309-37-1	0.10000	0.00057		
			Crystalline Silica, quartz	14808-60-7	99.90000	0.29011		
			Aluminum Oxide	1344-28-1	1.10000	0.00319		
			Titanium Oxide	13463-67-7	0.10000	0.00029		
			Iron Oxide	1309-37-1	0.10000	0.00029		
LSG-100L	Nabors Completion and Production Services	Gelling Agents						
WFR-6W	Nabors Completion and Production Services	Friction Reducer	Petroleum Distillates	64742-47-8	70.00000	0.03444		
HCl Acid (12.5-18.0%) 22 Baume	Nabors Completion and Production Services	Bulk Acid	Water	7732-18-5	40.00000	0.02353		
HCl Acid (12.5-18.0%) 22 Baume	Nabors Completion and Production Services	Bulk Acid	Water	7732-18-5	100.00000	0.01495		
AQUACAR DB 20	Nabors Completion and Production Services	Biocides	22° Baume Hydrochloric Acid	7647-01-0	100.00000	0.01223		
			Polyethylene glycol	25322-68-3	54.50000	0.00450		
			2,2-Dibromo-3-nitropropionamide (DBNPA)	10222-01-2	20.00000	0.00165		
			Sodium bromide	7647-15-6	4.00000	0.00033		
			Dibromoacetone	3252-43-5	3.00000	0.00025		
KR-153SL	Nabors Completion and Production Services	Biocides						
			Polyethylene Glycol	25322-68-3	50.00000	0.00200		
			2,2-dibromo-3-nitropropionamide	10222-01-2	20.00000	0.00080		
Super GREEN SOLV-M	Nabors Completion and Production Services	Paraffin & Scale Additives	Aliphatic Hydrocarbons	Proprietary	95.00000	0.00134		
			Dodecane	Proprietary	14.00000	0.00020		
			tetradecane	Proprietary	11.00000	0.00016		
			Tridecane	Proprietary	9.00000	0.00013		
			Undecane	Proprietary	8.00000	0.00011		
WFR-3B	Nabors Completion and Production Services	Friction Reducer	Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8	30.00000	0.00105		

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				Ethoxylated alcohols	68002-97-1	15.00000	0.00053	
Super TSC 2 LT	Nabors Completion and Production Services	Paraffin & Scale Additives		Ethoxylated oleylamine	26635-93-8	5.00000	0.00018	
				Bis(hexamethylene triaminepenta (methylenephosphonic acid))	Proprietary	10.00000	0.00138	
Acid Inhibitor 2 (AI-2)	Nabors Completion and Production Services	Acid Corrosion Inhibitors		Propargyl Alcohol	107-19-7	40.00000	0.00017	
				Glycol Ethers	111-46-6	40.00000	0.00017	
				Isopropyl Alcohol	67-63-0	40.00000	0.00017	
				Ethoxylated Nonylphenol	68412-54-4	13.00000	0.00006	
				Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7	10.00000	0.00004	
OB-2 LT	Nabors Completion and Production Services	Gel Breakers		Ammonium Persulfate	7727-54-0	85.00000	0.00050	
				Crystalline Silica (in the form of quartz)	14808-60-7	10.00000	0.00006	
EB-4L	Nabors Completion and Production Services	Gel Breakers		Ethylene Glycol	107-21-1	40.00000	0.00019	
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	Other Ingredients						
				Copolymer	Proprietary	100.00000	0.05882	
				guar gum	9000-30-0	50.00000	0.02460	
				isoparaffinic Solvent	64742-47-8	26.00000	0.01529	
				Water	7732-18-5	90.00000	0.01244	
				Water	7732-18-5	80.00000	0.00321	
				Water	7732-18-5	32.00000	0.00264	
				Ethoxylated alcohols	Proprietary	4.00000	0.00235	
				Ethylene Glycol	107-21-1	4.00000	0.00235	
				Surfactant Blend	Proprietary	3.00000	0.00177	
				Water	7732-18-5	40.00000	0.00140	
				Anionic Polyacrylamide	910644-97-2	40.00000	0.00140	
				Crystalline Silica (in the form of quartz)	14808-60-7	2.00000	0.00098	
				Surfactant	68439-51-0	2.00000	0.00098	
				Propylene glycol	57-55-6	15.00000	0.00053	
				Sugar	57-50-1	100.00000	0.00046	
				Proprietary	Proprietary	100.00000	0.00046	
				Water	7732-18-5	100.00000	0.00023	
				Water	7732-18-5	48.00000	0.00021	
				Sodium Hydroxide	1310-73-2	1.00000	0.00014	



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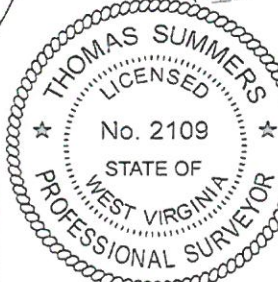
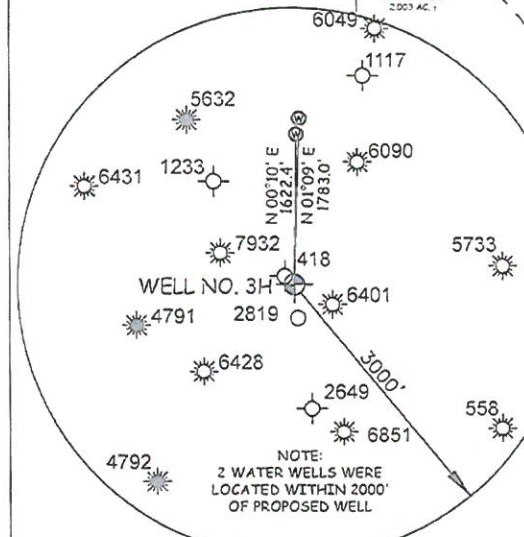
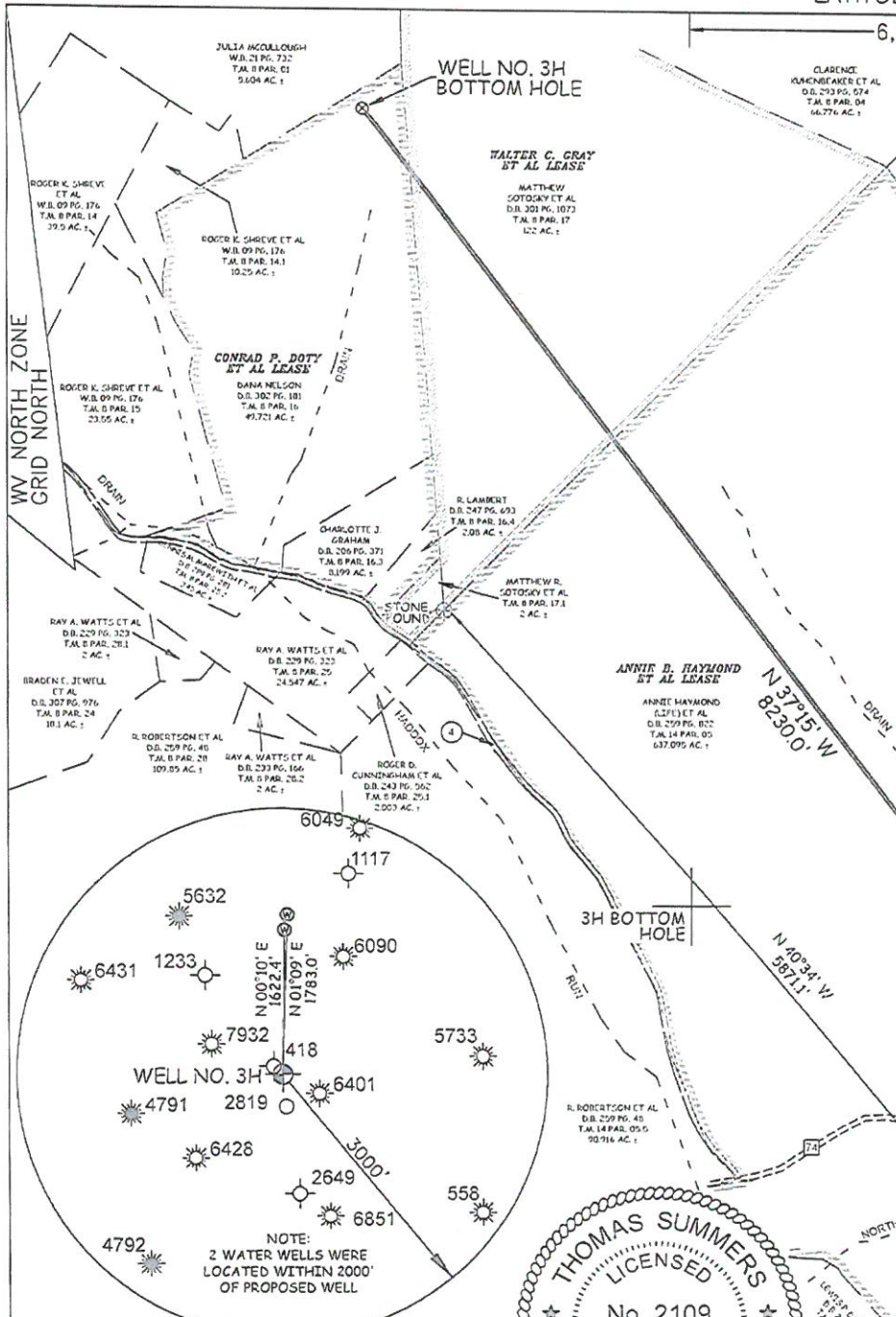
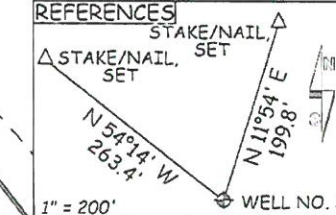
LATITUDE 39°20'00" 2,485'  
6,874' TO BOTTOM HOLE  
LATITUDE 39°22'30"

LONGITUDE 80°55'00" 10,120' TO BOTTOM HOLE  
LONGITUDE 80°55'00" 2,179'

Antero Resources  
Appalachian Corporation  
Well No. Belle Unit 3H

NOTES:  
WELL 3H TOP HOLE INFORMATION:  
3H TOP HOLE  
N: 304,538ft E: 1,596,778ft  
LAT: 39°19'38.47" LON: 80°55'31.59"  
BOTTOM HOLE INFORMATION:  
N: 311,842ft E: 1,592,501ft  
LAT: 39°20'49.98" LON: 80°56'27.51"  
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 3H TOP HOLE INFORMATION:  
N: 4,353,116m E: 506,441m  
BOTTOM HOLE INFORMATION:  
N: 4,355,319m E: 505,101m



LEGEND

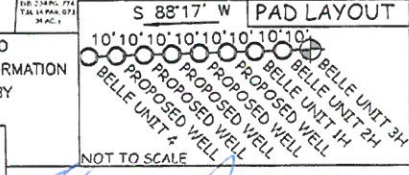
- Surface Owner Boundary Lines +/-
- - - - Interior Surface Tracts +/-
- x - x - x - Existing Fence
- ⊕ Found monument, as noted

JOB # 12-160WA  
DRAWING # BELLE3H  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WILLOW LAND SURVEYING PLLC  
266 HUSHERS RUN RD PENNSBORO WEST VIRGINIA 26415



THOMAS SUMMERS P.S. 2109  
DATE 01/29/13

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 1,004' 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; LEASE ACREAGE 33 ACRES±; 639.06 ACRES±;  
WALTER C. GRAY ET AL; CONRAD P. DOTY ET AL  
PROPOSED WORK: DRILL  CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION   
OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_  
PLUG & ABANDON \_\_\_ CLEAN OUT & REPLUG \_\_\_ ESTIMATED DEPTH 6,600' TVD 16,100' MD  
TARGET FORMATION MARCELLUS  
WELL OPERATOR ANTERO RESOURCES APPALACHIAN CORP. DESIGNATED AGENT DIANNA STAMPER  
ADDRESS 1625 17TH STREET ADDRESS 5400 D BIG TYLER ROAD  
DENVER, CO 80202 CHARLESTON, WV 25313

OPERATOR'S WELL # BELLE UNIT #3H  
API WELL # 47 - 085 - 10029  
STATE COUNTY PERMIT  
COUNTY NAME RITCHIE  
PERMIT