

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

API 47 - 085 - 10140 County Ritchie District Clay  
Quad Pullman 7.5' Pad Name Edwin Field/Pool Name ---  
Farm name Quimby, Franklin P. Well Number Miracle Unit 3H  
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 4342347m Easting 508388m  
Landing Point of Curve Northing 4341807.28m Easting 509276.15m  
Bottom Hole Northing 4339730m Easting 510185m

Elevation (ft) 1191' 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

Recorded  
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Date permit issued 9/22/2014 Date drilling commenced 1/6/2015 Date drilling ceased 10/2/2015  
Date completion activities began 10/15/2015 Date completion activities ceased 4/13/2016  
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 49' 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 1287' Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

**APPROVED**

NAME: Michael Goff

DATE: 12-21-2016

Reviewed by: \_\_\_\_\_

API 47-085 10140

Farm name Quimby, Franklin P.

Well number Miracle Unit 3H

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# H-40	N/A	Y
Surface	17- 1/2"	13- 3/8"	402'	New	48# H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2665'	New	36# K-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	17433'	New	23# P-110	N/A	Y
Tubing		2-3/8"	7206'		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	193 sx	15.6	1.18	38	0'	8 Hrs.
Surface	Class A	453 sx	15.6	1.18	279	0'	8 Hrs.
Coal							
Intermediate 1	Class A	997 sx	15.6	1.18	835	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	950 sx (Lead) 1638 sx (Tail)	13.5 Lead 15.2 Tail	1.44 Lead 1.80 Tail	3498	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17433' MD, 6680' TVD (BHL), 6691' (Deepest Point Drilled)

Loggers TD (ft) 17384'

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6575'

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

Modified  
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WAS WELL COMPLETED AS SHOT HOLE  Yes  No

DETAILS \_\_\_\_\_

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WAS WELL COMPLETED OPEN HOLE?  Yes  No

DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No

TYPE OF TRACER(S) USED \_\_\_\_\_



API 47- 085 - 10140 Farm name Quimby, Franklin P. Well number Miracle Unit 3H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6609' (TOP)</u> TVD	<u>7302' (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 12637 mcfpd Oil 160 bpd NGL --- bpd Water 304 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>		
<b>*PLEASE SEE ATTACHED EXHIBIT 3</b>					

Please insert additional pages as applicable.

Drilling Contractor Precision Drilling Company, LP  
Address 2640 Reach Rd. City Williamsport State PA Zip 17701

Logging Company Rush Wellsite Services  
Address 60 Alpha Dr. City Canonsburg State PA Zip 15317

Cementing Company Allied Oil & Gas Services, LLC  
Address 1036 East Main St. 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 *Kara Quackenbush* Title Permit Representative Date 7/1/2016

Submission of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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**EXHIBIT 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	15-Oct-15	17,177	17,346	60	Marcellus
2	14-Nov-15	16,976	17,146	60	Marcellus
3	15-Nov-15	16,776	16,945	60	Marcellus
4	15-Nov-15	16,575	16,744	60	Marcellus
5	15-Nov-15	16,374	16,543	60	Marcellus
6	16-Nov-15	16,173	16,343	60	Marcellus
7	16-Nov-15	15,973	16,142	60	Marcellus
8	17-Nov-15	15,772	15,941	60	Marcellus
9	17-Nov-15	15,571	15,740	60	Marcellus
10	17-Nov-15	15,370	15,540	60	Marcellus
11	17-Nov-15	15,170	15,339	60	Marcellus
12	18-Nov-15	14,969	15,138	60	Marcellus
13	18-Nov-15	14,768	14,937	60	Marcellus
14	18-Nov-15	14,567	14,737	60	Marcellus
15	21-Nov-15	14,367	14,536	60	Marcellus
16	21-Nov-15	14,166	14,335	60	Marcellus
17	21-Nov-15	13,965	14,134	60	Marcellus
18	21-Nov-15	13,764	13,934	60	Marcellus
19	22-Nov-15	13,564	13,733	60	Marcellus
20	22-Nov-15	13,363	13,532	60	Marcellus
21	22-Nov-15	13,162	13,331	60	Marcellus
22	22-Nov-15	12,961	13,131	60	Marcellus
23	23-Nov-15	12,761	12,930	60	Marcellus
24	23-Nov-15	12,560	12,729	60	Marcellus
25	23-Nov-15	12,359	12,528	60	Marcellus
26	23-Nov-15	12,158	12,328	60	Marcellus
27	24-Nov-15	11,958	12,127	60	Marcellus
28	24-Nov-15	11,757	11,926	60	Marcellus
29	24-Nov-15	11,556	11,725	60	Marcellus
30	24-Nov-15	11,355	11,525	60	Marcellus
31	24-Nov-15	11,155	11,324	60	Marcellus
32	25-Nov-15	10,954	11,123	60	Marcellus
33	25-Nov-15	10,753	10,922	60	Marcellus
34	25-Nov-15	10,552	10,722	60	Marcellus
35	27-Nov-15	10,352	10,521	60	Marcellus
36	27-Nov-15	10,151	10,320	60	Marcellus
37	28-Nov-15	9,950	10,119	60	Marcellus
38	28-Nov-15	9,749	9,919	60	Marcellus
39	28-Nov-15	9,549	9,718	60	Marcellus
40	28-Nov-15	9,348	9,517	60	Marcellus
41	28-Nov-15	9,147	9,316	60	Marcellus
42	29-Nov-15	8,946	9,116	60	Marcellus
43	29-Nov-15	8,746	8,915	60	Marcellus
44	29-Nov-15	8,545	8,714	60	Marcellus
45	29-Nov-15	8,344	8,513	60	Marcellus
46	29-Nov-15	8,143	8,313	60	Marcellus
47	30-Nov-15	7,943	8,112	60	Marcellus
48	30-Nov-15	7,742	7,911	60	Marcellus
49	30-Nov-15	7,541	7,710	60	Marcellus
50	30-Nov-15	7,340	7,510	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	13-Nov-15	64.8	7,490	5,249	4,159	132,100	6,608	N/A
2	14-Nov-15	55.2	7,736	5,908	4,190	27,000	6,536	N/A
3	15-Nov-15	63.5	7,492	5,694	4,432	107,700	6,588	N/A
4	15-Nov-15	58.3	7,816	6,143	3,791	146,370	6,638	N/A
5	15-Nov-15	62.6	7,367	5,278	3,943	123,000	6,581	N/A
6	16-Nov-15	63.0	6,946	5,605	4,929	110,360	7,159	N/A
7	16-Nov-15	65.1	7,230	5,332	4,810	149,700	6,548	N/A
8	17-Nov-15	68.8	7,553	6,005	4,956	192,300	6,844	N/A
9	17-Nov-15	70.0	7,219	5,313	4,790	214,980	7,003	N/A
10	17-Nov-15	70.0	7,579	5,529	4,264	166,190	6,704	N/A
11	17-Nov-15	72.0	7,053	5,360	4,972	249,382	6,691	N/A
12	18-Nov-15	70.0	7,522	5,398	4,020	217,150	6,939	N/A
13	18-Nov-15	66.0	7,346	5,209	7,092	106,720	6,366	N/A
14	18-Nov-15	69.0	6,976	5,205	5,167	174,280	6,282	N/A
15	21-Nov-15	70.6	7,008	5,275	4,910	198,300	6,423	N/A
16	21-Nov-15	73.0	6,974	5,235	5,087	250,700	6,709	N/A
17	21-Nov-15	71.0	6,718	5,153	4,750	260,750	6,576	N/A
18	21-Nov-15	71.1	6,632	5,379	4,979	259,160	6,650	N/A
19	22-Nov-15	71.3	6,508	5,495	4,919	180,100	7,049	N/A
20	22-Nov-15	72.0	6,809	5,501	4,946	262,390	6,551	N/A
21	22-Nov-15	72.0	6,818	5,537	4,891	258,220	6,439	N/A
22	22-Nov-15	71.2	6,783	5,815	4,958	202,950	7,098	N/A
23	23-Nov-15	71.2	6,959	5,474	4,628	250,060	6,466	N/A
24	23-Nov-15	73.0	7,008	5,192	3,765	259,820	6,646	N/A
25	23-Nov-15	73.0	6,816	5,385	4,147	255,000	6,340	N/A
26	23-Nov-15	71.2	6,524	5,238	5,007	251,260	6,360	N/A
27	24-Nov-15	72.0	6,475	5,304	4,777	250,900	6,325	N/A
28	24-Nov-15	73.0	6,690	5,153	4,140	258,930	6,461	N/A
29	24-Nov-15	73.0	7,023	5,137	4,679	222,570	6,599	N/A
30	24-Nov-15	70.8	6,755	5,418	4,097	251,600	6,294	N/A
31	24-Nov-15	71.8	6,911	5,835	3,815	231,400	6,398	N/A
32	25-Nov-15	72.0	6,975	5,298	4,568	246,160	6,748	N/A
33	25-Nov-15	73.0	6,697	5,184	5,109	261,030	6,353	N/A
34	25-Nov-15	73.2	6,697	5,564	4,738	249,800	6,333	N/A
35	27-Nov-15	72.4	6,687	5,715	4,490	249,550	6,285	N/A
36	27-Nov-15	71.4	6,702	5,243	4,125	217,050	6,591	N/A
37	28-Nov-15	69.5	6,693	5,458	4,863	225,800	6,118	N/A
38	28-Nov-15	72.0	6,987	5,221	4,950	231,800	6,796	N/A
39	28-Nov-15	73.8	7,028	5,543	3,916	230,400	6,670	N/A
40	28-Nov-15	72.1	6,578	5,104	4,492	252,200	6,332	N/A
41	28-Nov-15	71.6	6,567	5,070	5,372	250,250	6,239	N/A
42	29-Nov-15	72.1	6,385	5,233	4,871	232,650	6,520	N/A
43	29-Nov-15	72.7	6,283	4,997	5,282	245,600	6,198	N/A
44	29-Nov-15	72.8	6,427	4,988	5,271	247,650	6,120	N/A
45	29-Nov-15	72.3	6,451	4,918	3,602	198,700	6,271	N/A
46	29-Nov-15	65.8	6,550	4,986	3,995	46,600	6,659	N/A
47	30-Nov-15	72.2	6,418	4,844	3,146	249,650	6,156	N/A
48	30-Nov-15	72.0	6,260	4,818	4,955	234,000	5,836	N/A
49	30-Nov-15	71.3	6,054	5,462	4,146	250,420	6,054	N/A
50	30-Nov-15	72.1	6,442	6,498	3,657	181,600	6,507	N/A
<b>AVG=</b>		<b>70.1</b>	<b>6,872</b>	<b>5,378</b>	<b>4,591</b>	<b>10,522,252</b>	<b>6,513</b>	<b>TOTAL</b>

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## EXHIBIT 3

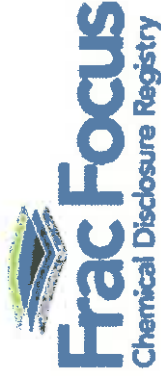
LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Fresh Water	49'	N/A	49'	N/A
Sandy Shale	0	187	0	187
Sandstone	est. 187	447	est. 187	447
Shale/Siltstone	est. 447	647	est. 447	647
Shaley Limestone	est. 647	727	est. 647	727
Shale/Siltstone	est. 727	1127	est. 727	1127
Shaley Limestone	est. 1127	1287	est. 1127	1287
Coal	est. 1287	1307	est. 1287	1307
Shaley Limestone (trace coal)	est. 1307	1627	est. 1307	1627
Shale/Siltstone	est. 1627	1787	est. 1627	1787
Sandstone/Siltstone	est. 1787	1827	est. 1787	1827
Sandstone/Siltstone with trace coal	est. 1827	2007	est. 1827	2007
Silty Sandstone	est. 2007	2156	est. 2007	2158
Big Lime	2156	2256	2158	2258
Big Injun	2256	2661	2258	2663
Gantz Sand	2661	2863	2663	2865
Fifty Foot Sandstone	2863	2917	2865	2919
Gordon	2917	3065	2919	3069
Fifth Sandstone	3065	3209	3069	3216
Bayard	3209	3622	3216	3657
Warren	3622	4039	3657	4137
Speechley	4039	4276	4137	4411
Baltown	4276	4712	4411	4922
Bradford	4712	5115	4922	5387
Benson	5115	5363	5387	5670
Alexander	5363	5591	5670	5938
Eik	5591	5992	5938	6396
Rhinstreet	5992	6276	6396	6727
Sycamore	6276	6439	6727	6948
Middlesex	6439	6549	6948	7135
Burkett	6549	6583	7135	7211
Tully	6583	6609	7211	7302
Marcellus	6609	NA	7302	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	11/13/2015
Job End Date	11/30/2015
State	West Virginia
County	Ritchie
API Number	47-085-10140-00-00
Operator Name	Antero Resources Corporation
Well Name and Number	Miracle 3H
Longitude	-80.90281700
Latitude	39.23037800
Datum	NAD83
Federal/Tribal Well	NO
True Vertical Depth	6,691
Total Base Water Volume (gal)	14,405,370
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	91.58556	
Sand	U.S. Well Services, LLC	Proppant					
LC-15	U.S. Well Services	Gelling Agents	Crystalline Silica, quartz	14808-60-7	100.00000	8.02131	
			Guar Gum	9000-30-0	50.00000	0.08045	
			Petroleum Distillates	64742-47-8	60.00000	0.97619	
			Suspending agent (solid)	14808-60-7	3.00000	0.01230	
			Surfactant	68439-51-0	3.00000	0.00483	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.07913	
			Hydrogen Chloride	7647-01-0	18.00000	0.01892	
WFRA-405	U.S. Well Services	Friction Reducer					
			Water	7732-18-5	60.00000	0.04749	
			2-Propenoic acid, polymer with 2-propenamide	29003-06-9	30.00000	0.2375	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01912	
			Ethoxylated alcohol blend	68002-97-1	4.00000	0.00317	



SI-1100	U.S. Well Services	Scale Inhibitor						
		Water	7732-18-5		80.00000		0.01037	
		Ethylene Glycol	107-21-1		25.00000		0.00366	
		Copolymer of Maleic and Acrylic acid	52255-49-9		10.00000		0.00153	
		Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8		7.50000		0.00131	
		Hexamethylene triamine penta (methylene phosphonic acid)	34690-00-1		5.00000		0.00084	
		Phosphino carboxylic acid polymer	71050-62-9		5.00000		0.00084	
		Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5		2.00000		0.00034	
K-BAC 1020	U.S. Well Services	Anti-Bacterial Agent						
		2,2-dibromo-3-nitropropanamide	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		0.00196	
AI-302	U.S. Well Services	Acid Corrosion Inhibitors						
		Water	7732-18-5		95.00000		0.00034	
		2-Propyn-1-ol compound with methylxirane	38172-91-7		15.00000		0.00005	

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)

Produced  
Oil & Gas  
Office  
JUL 05 2016

LATITUDE 39°15'00"

7,928'

2,042' TO BOTTOM HOLE  
LATITUDE 39°12'30"  
3H BOTTOM HOLE

Antero Resources Corporation  
Well No. Miracle Unit 3H  
47-085-10140 (AS DRILLED)

WELL NO. 3H-  
47-085-10140

LAWRENCE C. HEW  
ET AL LEASE  
FRANKLIN P. QUIMBY  
D.B. 200 PG. 948  
T.M. 27 PAR. 11  
23 AC.±

CLARENCE COTTRILL ET AL.  
D.B. 176 PG. 465  
T.M. 27 PAR. 9  
24.24 AC.±

JAMES H. LAFFERTY  
D.B. 210 PG. 889  
T.M. 4 PAR. 1  
113 AC.±

WM. VANCAMPEN  
ET AL LEASE  
JACK D. MACKAY ET AL.  
D.B. 280 PG. 972  
T.M. 27 PAR. 3  
233.05 AC.±

MARJORIE CROOKS  
ET AL LEASE  
JAMES H. LAFFERTY  
D.B. 210 PG. 889  
T.M. 4 PAR. 11  
117 AC.±

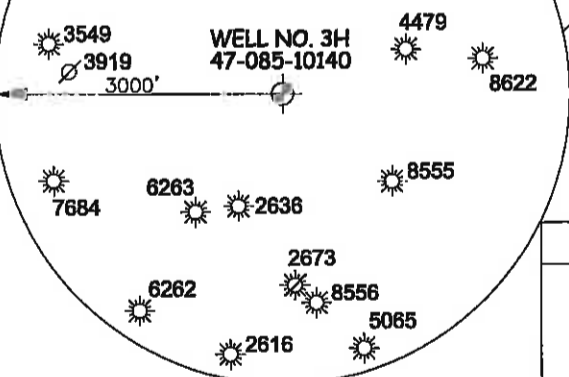
EASTERN AMERICAN  
ENERGY  
CORPORATION LEASE  
JACK D. MACKAY ET AL.  
D.B. 280 PG. 972  
T.M. 27 PAR. 3  
144.86 AC.±

10  
4

PAD LAYOUT

- Hornet Unit 2H 10'
  - Hornet Unit 1H 10'
  - Myrtle Unit 1H 10'
  - Myrtle Unit 2H 10'
  - Miracle Unit 2H 10'
  - Miracle Unit 1H 10'
  - Moats Unit 2H 10'
  - Moats Unit 1H 10'
  - Moats Unit 3H 10'
  - Miracle Unit 3H 10'
- NOT TO SCALE

NOTE:  
NO WATER WELLS WERE  
LOCATED WITHIN 2000'  
OF PROPOSED WELL



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, DIVISION  
OF ENVIRONMENTAL PROTECTION,  
OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO  
WEST VIRGINIA 26415

JOB # 13-050WA  
DRAWING # MIRACLE3HAD  
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 X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
(IF "GAS") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X

LOCATION: ELEVATION 1,216' ORIGINAL - 1,191' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER  
QUADRANGLE PULLMAN 7.5

SURFACE OWNER FRANKLIN P. QUIMBY ACREAGE 23 ACRES +/-

OIL & GAS ROYALTY OWNER LAWRENCE C. HEW ET AL; WM. VANCAMPEN ET AL; EASTERN AMERICAN ENERGY CORP.;  
MARJORIE CROOKS ET AL; BYRIL ROSS ET AL; JACK LANGFORD ET AL; DENNIS FERGUSON ET AL; BP MINERAL HOLDINGS III, LLC; ELOISE MIRACLE 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) (AS DRILLED) PLUG & ABANDON CLEAN OUT & REPLUG  
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,680' TVD 17,433' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM  
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD

FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

AS DRILLED DATA:  
WELL 3H TOP HOLE INFORMATION:  
N: 269,093ft E: 1,602,577ft  
LAT: 39°13'49.07" LON: 80°54'10.76"  
BOTTOM HOLE INFORMATION:  
N: 260,407ft E: 1,608,331ft  
LAT: 39°12'24.11" LON: 80°52'55.95"  
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: 4,342,347m E: 508,388m  
BOTTOM HOLE INFORMATION:  
N: 4,339,730m E: 510,185m

- 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.
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4431

2534

16

4432

GRANT CANNINGHAM ET AL.  
D.B. 246 PG. 626  
T.M. 9 PAR. 5  
50 AC.±

BYRIL ROSS  
ET AL LEASE  
NACOE CANNINGHAM  
D.B. 243 PG. 69  
T.M. 9 PAR. 9  
102.37 AC.±

J.J. WISE ET AL.  
W.A. 16 PG. 314  
T.M. 9 PAR. 8  
LOT

MOORE CANNINGHAM  
D.B. 243 PG. 55  
T.M. 9 PAR. 13  
25 AC.±

BP  
MINERAL  
HOLDINGS  
III, LLC  
LEASE

DENNIS FERGUSON  
ET AL LEASE  
JOHN A. LOUISE ET AL.  
D.B. 299 PG. 959  
T.M. 9 PAR. 11  
82.2 AC.±

DONNA LEWISTEYER  
D.B. 256 PG. 405  
T.M. 9 PAR. 7  
62.19 AC.±

7297

7142

WHITEOAK  
Office of

ELOISE MIRACLE  
ET AL LEASE  
JOHN A. LOUISE ET AL.  
D.B. 299 PG. 27  
T.M. 9 PAR. 14  
94.7 AC.±

WELL 3H  
BOTTOM HOLE

DATE 02/29/2016

OPERATOR'S WELL# MIRACLE UNIT #3H

API WELL # 47 - 085 - 10140

STATE COUNTY PERMIT

QUADRANGLE PULLMAN 7.5 DISTRICT CLAY (TH) UNION (BH) COUNTY RITCHIE

ACREAGE 23 ACRES +/- LEASE ACREAGE 53 AC±; 312 AC±; 145 AC±;

117 AC±; 103 AC±; 74 AC±; 88 AC±; 55 AC±; 116 AC±;

REDRILL \_\_\_ FRACTURE OR STIMULATE \_\_\_

CLEAN OUT & REPLUG

DIANNA STAMPER  
CT CORPORATION SYSTEM

CHARLESTON, WV 25313

596' TO BOTTOM HOLE  
LONGITUDE 80°52'30"

7,176'

LONGITUDE 80°52'30"

COUNTY NAME PERMIT

LATITUDE 39°15'00"

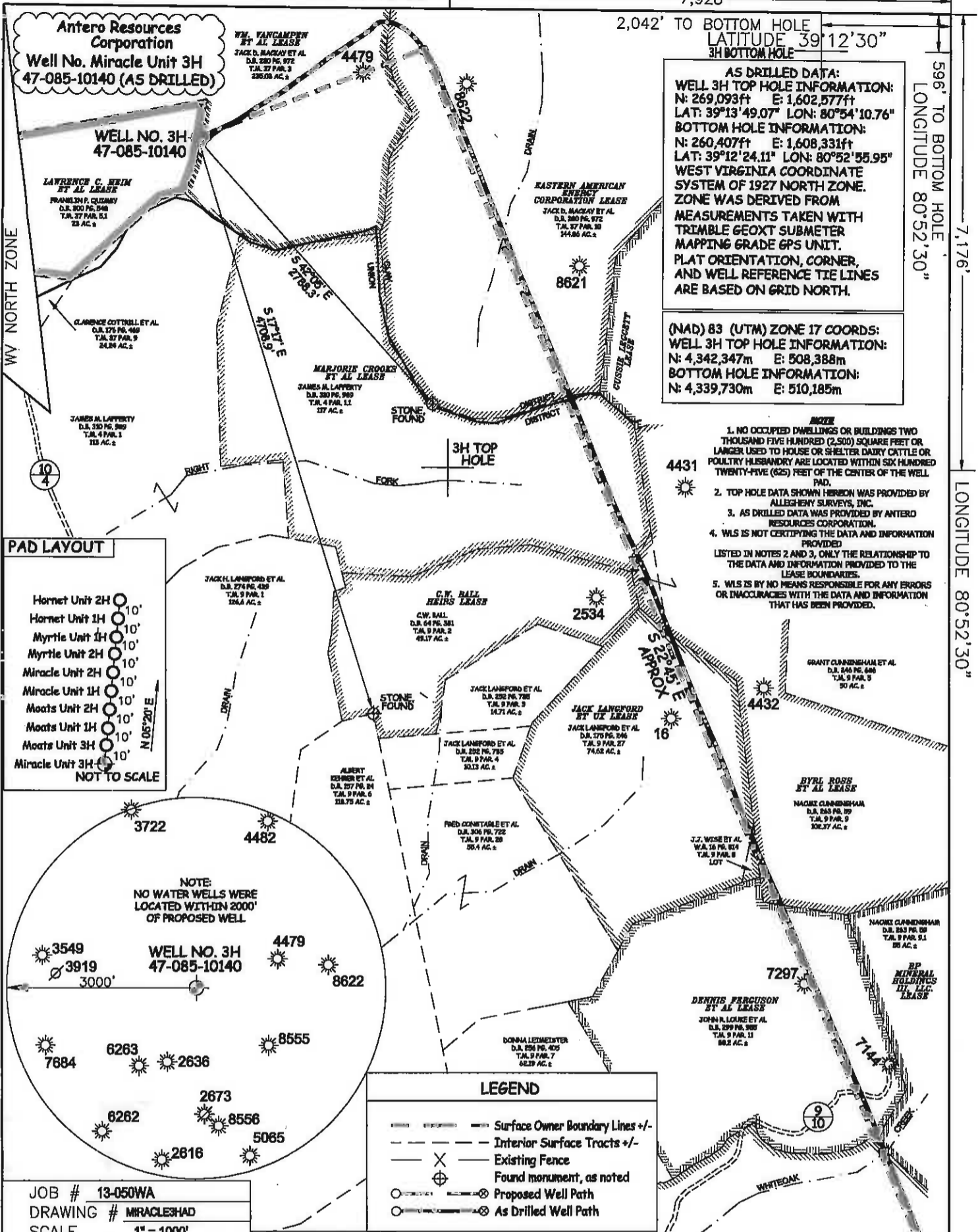
7,928'

2,042' TO BOTTOM HOLE  
LATITUDE 39°12'30"  
3H BOTTOM HOLE

596' TO BOTTOM HOLE  
LONGITUDE 80°52'30"

7,176'

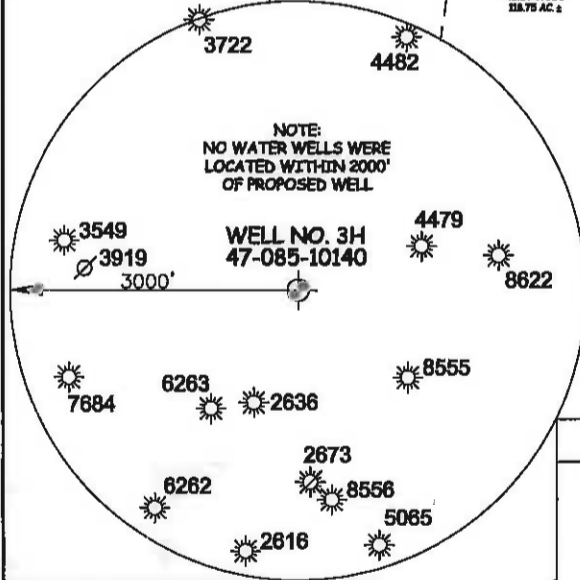
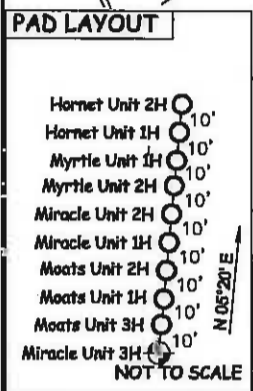
LONGITUDE 80°52'30"



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JOB # 13-050WA  
 DRAWING # MIRACLE3HAD  
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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

DATE 02/28/2016  
 OPERATOR'S WELL# MIRACLE UNIT #3H  
 API WELL # 47 - 085 - 10140  
 STATE COUNTY PERMIT

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 1,218' ORIGINAL - 1,191' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER  
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WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER  
 ADDRESS 1815 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT