

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

API 47 - 085 - 10330 County Ritchie District Clay  
Quad Pennsboro 7.5' Pad Name Hichman Pad Field/Pool Name ----  
Farm name Radall Bond et al Well Number Griff Unit 2H  
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 4354349m Easting 509969m  
Landing Point of Curve Northing 4354480m Easting 510294m  
Bottom Hole Northing 4358033m Easting 509093m

Elevation (ft) 1250' 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 12/22/2017 Date drilling commenced 1/31/2018 Date drilling ceased 8/15/2018  
Date completion activities began 11/30/2018 Date completion activities ceased 3/31/2019  
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 None Identified 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 - 10330 Farm name Radall Bond et al Well number Griff Unit 2H

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"	95'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	445.6'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2610'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	19474'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6891.3'		4.7#, L-80		
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	204 sx	15.6	1.18	241	0'	8 Hrs.
Surface	Class A	475 sx	15.6	1.20	570	0'	8 Hrs.
Coal							
Intermediate 1	Class A	904 sx	15.6	1.20	1085	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	740 sx (Lead) 1960sx (Tail)	14 (Lead), 15.2 (Tail)	1.45 (Lead), 1.83(Tail)	4660	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 19494' MD, 6678' TVD (BHL), 6677' (Deepest Point Drilled) Loggers TD (ft) 19494' MD

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

Plug back procedure N/A

Kick off depth (ft) 6100'

\*\* This is a subsequent Well. Antero only runs wireline logs on one well on a multi-well pad (Centerville Unit 2H API#47-085-10338). 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 N/A



API 47- 085 - 10330 Farm name Radall Bond et al Well number Griff Unit 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
Marcellus	6601' (TOP) TVD	6948' (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 11386.84 mcfpd Oil 178.48 bpd NGL --- bpd Water 770.86 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 <sub>2</sub> S, ETC)
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**\*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 Allied Horizontal Wireline Services  
Address 381 Colonial Manor Rd City North Huntington State PA Zip 15642

Cementing Company C&J Energy Services  
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company CalFrac Well Services  
Address 171 17th Street, Wuite 1445 City Denver State CO Zip 80202

Please insert additional pages as applicable.

Completed by Karin Cox Telephone 303-357-6820  
Signature  Title Permitting Agent Date 6/7/2019

## API 47-085-10330 Farm Name Radall Bond et al Well Number Griff Unit 2H

## EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	11/30/2018	19315.1	19370	60	Marcellus
2	11/30/2018	19113.08	19081.41	60	Marcellus
3	12/1/2018	18911.06	18879.39	60	Marcellus
4	12/2/2018	18709.04	18677.37	60	Marcellus
5	12/2/2018	18507.02	18475.35	60	Marcellus
6	12/2/2018	18305	18273.33	60	Marcellus
7	12/3/2018	18102.98	18071.31	60	Marcellus
8	12/4/2018	17900.96	17869.29	60	Marcellus
9	12/4/2018	17698.94	17667.27	60	Marcellus
10	12/4/2018	17496.92	17465.25	60	Marcellus
11	12/5/2018	17294.9	17263.23	60	Marcellus
12	12/5/2018	17092.88	17061.21	60	Marcellus
13	12/6/2018	16890.86	16859.19	60	Marcellus
14	12/8/2018	16688.84	16657.17	60	Marcellus
15	12/8/2018	16486.82	16455.15	60	Marcellus
16	12/9/2018	16284.8	16253.13	60	Marcellus
17	12/9/2018	16082.78	16051.11	60	Marcellus
18	12/10/2018	15880.76	15849.09	60	Marcellus
19	12/10/2018	15678.74	15647.07	60	Marcellus
20	12/11/2018	15476.72	15445.05	60	Marcellus
21	12/11/2018	15274.7	15243.03	60	Marcellus
22	12/11/2018	15072.68	15041.01	60	Marcellus
23	12/12/2018	14870.66	14838.99	60	Marcellus
24	12/12/2018	14668.64	14636.97	60	Marcellus
25	12/13/2018	14466.62	14434.95	60	Marcellus
26	12/13/2018	14264.6	14232.93	60	Marcellus
27	12/14/2018	14062.58	14030.91	60	Marcellus
28	12/14/2018	13860.56	13828.89	60	Marcellus
29	12/14/2018	13658.54	13626.87	60	Marcellus
30	12/15/2018	13456.52	13424.85	60	Marcellus
31	12/16/2018	13254.5	13222.83	60	Marcellus
32	12/17/2018	13052.48	13020.81	60	Marcellus
33	12/17/2018	12850.46	12818.79	60	Marcellus
34	12/18/2018	12648.44	12616.77	60	Marcellus
35	12/19/2018	12446.42	12414.75	60	Marcellus
36	12/19/2018	12244.4	12212.73	60	Marcellus
37	12/19/2018	12042.38	12010.71	60	Marcellus
38	12/20/2018	11840.36	11808.69	60	Marcellus
39	12/21/2018	11638.34	11606.67	60	Marcellus
40	12/22/2018	11436.32	11404.65	60	Marcellus
41	12/22/2018	11234.3	11202.63	60	Marcellus
42	12/23/2018	11032.28	11000.61	60	Marcellus
43	12/23/2018	10830.26	10798.59	60	Marcellus
44	12/24/2018	10628.24	10596.57	60	Marcellus
45	12/26/2018	10426.22	10394.55	60	Marcellus
46	12/27/2018	10224.2	10192.53	60	Marcellus
47	12/27/2018	10022.18	9990.51	60	Marcellus
48	12/28/2018	9820.16	9788.49	60	Marcellus
49	12/28/2018	9618.14	9586.47	60	Marcellus
50	12/29/2018	9416.12	9384.45	60	Marcellus
51	12/29/2018	9214.1	9182.43	60	Marcellus
52	12/30/2018	9012.08	8980.41	60	Marcellus
53	12/30/2018	8810.06	8778.39	60	Marcellus
54	12/31/2018	8608.04	8576.37	60	Marcellus
55	12/31/2018	8406.02	8374.35	60	Marcellus
56	1/1/2019	8204	8172.33	60	Marcellus
57	1/1/2019	8001.98	7970.31	60	Marcellus
58	1/2/2019	7799.96	7768.29	60	Marcellus
59	1/2/2019	7597.94	7566.27	60	Marcellus
60	1/2/2019	7395.92	7364.25	60	Marcellus
61	1/3/2019	7193.9	7162.23	60	Marcellus
62	1/3/2019	6991.88	7301.829	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	11/30/2018	66.8	8344	5831	3996	152200	5484.3	N/A
2	11/30/2018	68	8098	5756	4133	404450	8078.69	N/A
3	12/1/2018	71.4	8123	6100	3616	403850	8151.76	N/A
4	12/2/2018	67.6	8269	5627	3048	404300	8295.77	N/A
5	12/2/2018	65.8	8323	6018	3116	403950	8430.57	N/A
6	12/2/2018	64.3	8268	5008	3281	404200	8097.11	N/A
7	12/3/2018	70.2	7992	6413	3098	404500	8026.39	N/A
8	12/4/2018	65.7	8081	6240	3488	406550	8215.01	N/A
9	12/4/2018	67.6	8200	6278	3764	403200	9861.53	N/A
10	12/4/2018	67.7	8015	5474	3940	381900	7943.46	N/A
11	12/5/2018	73.5	8281	6369	4418	409250	7997.25	N/A
12	12/5/2018	69	8258	5643	3764	407250	8007.75	N/A
13	12/6/2018	67.9	8165	5785	3802	404000	8063.55	N/A
14	12/8/2018	60.2	7294	5996	4563	404700	10695.52	N/A
15	12/8/2018	69.2	7661	5950	4795	404900	8506.13	N/A
16	12/9/2018	66.6	7274	5769	4107	405050	8295.14	N/A
17	12/9/2018	65.7	7252	6077	4243	404550	8330.93	N/A
18	12/10/2018	70.3	7582	5988	4829	406650	8410.53	N/A
19	12/10/2018	73	7846	6650	4653	406200	7981	N/A
20	12/11/2018	69.5	7856	6581	4114	404750	7953	N/A
21	12/11/2018	72.3	7676	6385	4723	404600	8018	N/A
22	12/11/2018	70.1	7839	6656	3661	405350	7515	N/A
23	12/12/2018	74.2	7608	6026	4829	404600	7806	N/A
24	12/12/2018	75.3	8158	6638	3563	404250	7966	N/A
25	12/13/2018	73	7861	6507	3840	406500	7876	N/A
26	12/13/2018	77	7945	6862	3577	405000	7992	N/A
27	12/14/2018	77.7	7929	6236	4589	404550	7431	N/A
28	12/14/2018	77.5	7843	6311	4000	404250	7386	N/A
29	12/14/2018	78.6	8014	6865	3370	404800	7495	N/A
30	12/15/2018	78.1	7758	6496	4254	404100	7774	N/A
31	12/16/2018	72.7	8074	6416	4066	404400	7449	N/A
32	12/17/2018	76.4	7805	5460	4366	403950	9421	N/A
33	12/17/2018	59.1	8303	6495	4533	404500	10122	N/A
34	12/18/2018	73.7	7607	6698	4580	403950	7453	N/A
35	12/19/2018	67.7	7546	6520	3326	406000	7585	N/A
36	12/19/2018	77	7915	6402	4088	403850	7447	N/A
37	12/19/2018	73.6	7992	6436	4088	404400	7820.1	N/A
38	12/20/2018	78.1	7702	5591	3973	401950	7792	N/A
39	12/21/2018	77.3	7726	6349	3516	402500	7695	N/A
40	12/22/2018	79.4	7643	6648	4147	404650	7728.3	N/A
41	12/22/2018	79.1	7696	6917	3013	404300	7783	N/A
42	12/23/2018	79.1	7713	6620	3167	376350	7371	N/A
43	12/23/2018	77.9	7440	4191	3000	404250	7976	N/A
44	12/24/2018	81	7367	6635	3348	404200	7901.9	N/A
45	12/26/2018	78.8	7782	7324	3544	404100	7887	N/A
46	12/27/2018	80.3	7917	7368	3251	403910	7733	N/A
47	12/27/2018	77.2	7121	6546	3464	401650	8132	N/A
48	12/28/2018	79.9	7666	6486	2996	404850	8623	N/A
49	12/28/2018	74.4	8027	6381	3293	405500	7889.7	N/A
50	12/29/2018	81	7752	6895	3074	404250	7875	N/A
51	12/29/2018	80.2	7747	6871	3069	403850	7796	N/A
52	12/30/2018	79.2	7377	6432	3392	404400	8008.3	N/A
53	12/30/2018	85	7517	5190	3209	403800	8082.7	N/A
54	12/31/2018	81	6923	5651	3263	405000	8088	N/A
55	12/31/2018	88.4	7496	5605	3544	403650	7930.6	N/A
56	1/1/2019	81.1	7205	5336	3057	407200	7903	N/A
57	1/1/2019	88.4	7167	4970	4032	409200	7926	N/A
58	1/2/2019	88.4	7605	5432	3547	408700	7919	N/A
59	1/2/2019	87.2	7686	5597	3404	405150	7921	N/A
60	1/2/2019	86	7207	6114	3118	403300	7914	N/A
61	1/3/2019	89.2	7241	5998	3275	404950	7876	N/A
62	1/3/2019	80.1	6995	5733	3198	404100	7826	N/A
	AVG=	75	7,754	6,159	3,744	24,791,210	496,959	TOTAL

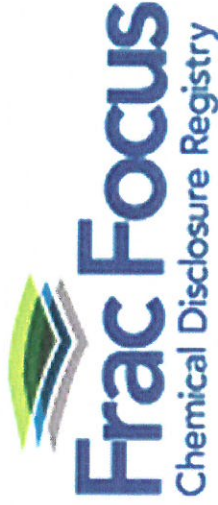
**EXHIBIT 3**

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
No Data collected	0	445	0	445
Silty Shale	est 445	505	est 445	505
Shaly Siltstone	est 505	685	est 505	685
Sandy Siltstone	est 685	765	est 685	765
Silty Sandstone	est 765	845	est 765	845
Sandy Siltstone	est 845	905	est 845	905
Shaly Sandstone	est 905	945	est 905	945
Sandy Shale	est 945	1,085	est 945	1,085
Shaly sandstone tr coal	est 1,085	1,145	est 1,085	1,145
Shaly Sandstone	est 1,145	1,265	est 1,145	1,265
Silty Shale with intermittend SS	est 1,265	1,625	est 1,265	1,625
Sandstone	est 1,625	1,785	est 1,625	1,785
Sandy Shale	est 1,785	2,108	est 1,785	2,134
Big Lime	2,108	2,967	2,134	3,015
Fifty Foot Sandstone	2,967	3,071	3,015	3,122
Gordon	3,071	3,232	3,122	3,285
Fifth Sandstone	3,232	3,438	3,285	3,497
Bayard	3,438	3,978	3,497	4,050
Speechley	3,978	4,233	4,050	4,310
Balltown	4,233	4,778	4,310	4,870
Bradford	4,778	5,120	4,870	5,223
Benson	5,120	5,367	5,223	5,477
Alexander	5,367	6,313	5,477	6,473
Sycamore	6,313	6,426	6,473	6,612
Middlesex	6,426	6,536	6,612	6,786
Burkett	6,536	6,570	6,786	6,859
Tully	6,570	6,601	6,859	6,948
Marcellus	6,601	NA	6,948	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.

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	11/30/2018
Job End Date:	1/3/2019
State:	West Virginia
County:	Ritchie
API Number:	47-085-10330-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Griff Unit 2H
Latitude:	39.33917600
Longitude:	-80.88434400
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,651
Total Base Water Volume (gal):	21,635,169
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	Supplied by Operator	Base Fluid					
			Water	7732-18-5	70.00000	87.57607	
DAP-902	CWS	Scale Inhibitor					
				Listed Below			





				Listed Below			
Items above are Trade Names with the exception of Base Water . Items below are the individual ingredients.							
				Crystalline silica (Quartz)	14808-60-7	100.00000	12.02937
				Calcite	471-34-1	1.00000	0.08217
				Hydrochloric acid	7647-01-0	37.00000	0.05553
				Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.04861
				Guar gum	9000-30-0	60.00000	0.04861
				Illite	12173-60-3	1.00000	0.03809
				Polymer	26100-47-0	45.00000	0.02698
				Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01798
				Biotite	1302-27-8	0.10000	0.01203
				Goethite	1310-14-1	0.10000	0.01203
				Apatite	64476-38-6	0.10000	0.01203
				Ammonium chloride	12125-02-9	11.00000	0.00659
				2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00600
				Polyethylene glycol mixture	25322-68-3	54.50000	0.00581
				Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00405
				Ilmenite	98072-94-7	0.10000	0.00381
				Sorbitan monooleate	1338-43-8	4.00000	0.00240
				2,2-Dibromo-3-Nitropropionamide	10222-01-2	20.00000	0.00213
				Polyethylene glycol monooleate	9004-96-0	3.00000	0.00180
				1,2-Propanediol	57-55-6	10.00000	0.00150
				Ammonium Persulfate	64742-47-8	100.00000	0.00144

					37251-67-5	1.50000	0.00122	
				Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether				
				Sorbitol tetraoleate	61723-83-9	2.00000	0.00120	
				Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00060	
				Citric acid	77-92-9	60.00000	0.00050	
				Sodium bromide	7647-15-6	4.00000	0.00043	
				Dibromoacetone	3252-43-5	3.00000	0.00032	
				Alkylpolyethyleneoxy ethanol	84133-50-6	0.50000	0.00030	
				Vinylidene chloride-methyl acrylate copolymer	69418-26-4	20.00000	0.00029	
				Acrylamide	79-06-1	0.10000	0.00006	
				Ethylene glycol	107-21-1	40.00000	0.00003	
				Diethylene glycol, monomethyl ether	34590-94-8	20.00000	0.00002	
				Isopropyl alcohol	67-63-0	5.00000	0.00001	
				Formic Acid	64-18-6	10.00000	0.00001	
				Tar bases, quinolone derivs, benzyl chloride- quaternized	72480-70-7	10.00000	0.00001	
				Cinnamaldehyde	104-55-2	10.00000	0.00001	

\* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water  
\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%  
\*\*\* If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

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°22'30" 2,686'

5,542' TO BOTTOM HOLE LATITUDE 39°22'30"

Antero Resources Corporation Well No. Griff Unit 2H

NOTES: WELL 2H TOP HOLE INFORMATION: N: 308,391ft E: 1,608,422ft LAT: 39°20'18.36" LON: 80°53'04.19" BOTTOM HOLE INFORMATION: N: 320,529ft E: 1,605,751ft LAT: 39°22'17.90" LON: 80°53'40.58" WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH 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 2H TOP HOLE INFORMATION: N: 4,354,349m E: 509,969m BOTTOM HOLE INFORMATION: N: 4,358,033m E: 509,093m

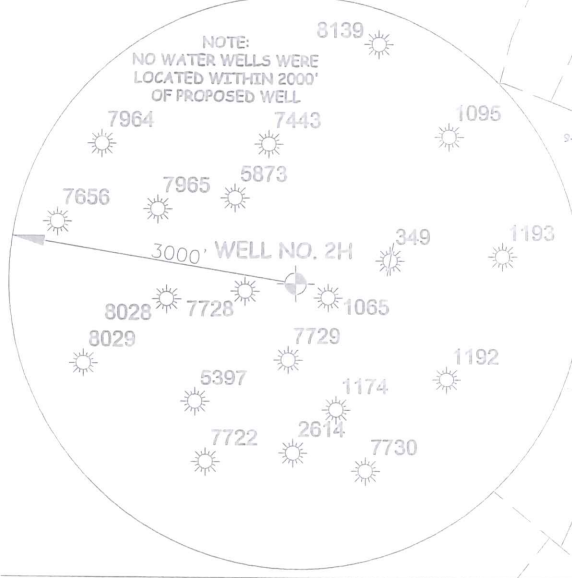
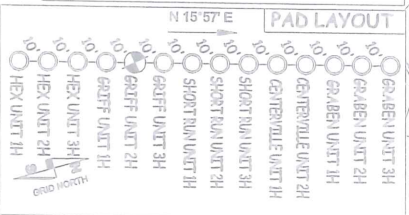


Table listing landowners and acreage for various leases in Clay and Ritchie Counties, including names like Clifford Leckard, Nancy Richards, and James Smith.

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 RULES 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, 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

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 # 17-007WA DRAWING # GRIFF2HAD SCALE 1" = 2000' 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

LEGEND: Surface Owner Boundary Lines +/- Interior Surface Tracts +/- Proposed Well Path As Drilled Well Path. DOUGLAS R. ROWE P.S. 2202 DATE 06/03/19 OPERATOR'S WELL# GRIFF UNIT #2H

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 - 085 - 10330 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT LOCATION: ELEVATION 1,250' AS BUILT WATERSHED NORTH FORK HUGHES RIVER QUADRANGLE PENNSBORO 7.5' DISTRICT CLAY COUNTY RITCHIE SURFACE OWNER RADALL BOND ET AL ACREAGE 32.16 ACRES +/- OIL & GAS ROYALTY OWNER MARTHA J. DAVIS ET VIR; LELIA WASHBURN ET AL; BETTY M. TARULLI ET AL; LEASE ACREAGE 70 AC±; 150 AC±; 69 AC±; BETTY M. TARULLI ET AL; WACO OIL & GAS CO.; SHIRLEY BERYL BURCHARD ET VIR; EQT PROD. CO.; EDITH A. GRIFFIN ET VIR; 76 AC±; 56 AC±; 60 AC±; 70 AC±; 91 AC±; JAMES D. LASATER; LINDA D. BURG-JETT 66.5 AC±; 65 AC± 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 6,678' TVD 19,494' MD WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT