

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

API 47 - 085 - 10336 County Ritchie District Clay
Quad Pennsboro 7.5' Pad Name Hichman Pad Field/Pool Name -----
Farm name Radall Bond et al Well Number Graben 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 4354376m Easting 509976m
Landing Point of Curve Northing 4354339m Easting 510555m
Bottom Hole Northing 4352492m Easting 511184m

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 1/17/2018 Date drilling commenced 1/31/2018 Date drilling ceased 7/3/2018
Date completion activities began 2/12/2019 Date completion activities ceased 3/30/2019
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 - 10336 Farm name Radall Bond et al Well number Graben 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	24"	20"	112'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	442'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2623.1'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	14039'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7138.6'		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 ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	204 sx	15.6	1.18	241	0'	8 Hrs.
Surface	Class A	376 sx	15.6	1.20	451	0'	8 Hrs.
Coal							
Intermediate 1	Class A	920 sx	15.6	1.20	1104	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	835 sx (Lead) 1255 sx (Tail)	14 (Lead), 15.2 (Tail)	1.45 (Lead), 1.83(Tail)	3507	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 14059' MD, 6684' TVD (BHL), 6684' (Deepest Point Drilled) Loggers TD (ft) 14059' MD

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

Plug back procedure N/A

Kick off depth (ft) 6200'

** 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 - 10336 Farm name Radall Bond et al Well number Graben Unit 3H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
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***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)
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***PLEASE SEE ATTACHED EXHIBIT 2**

Please insert additional pages as applicable.

API 47- 085 - 10336 Farm name Radall Bond et al Well number Graben Unit 3H

PRODUCING FORMATION(S)	DEPTHS		
Marcellus	6609' (TOP)	TVD	7208' (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 10765.86 mcfpd Oil 85.08 bpd NGL --- bpd Water 755.9 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	

***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 47-085-10336 Farm Name Radall Bond et al Well Number Graben Unit 3H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2/12/2019	13879.1	13934.3	60	Marcellus
2	2/13/2019	13678.268	13847.628	60	Marcellus
3	2/13/2019	13477.436	13646.796	60	Marcellus
4	2/14/2019	13276.604	13445.964	60	Marcellus
5	2/15/2019	13075.772	13245.132	60	Marcellus
6	2/15/2019	12874.94	13044.3	60	Marcellus
7	2/15/2019	12674.108	12843.468	60	Marcellus
8	2/16/2019	12473.276	12642.636	60	Marcellus
9	2/16/2019	12272.444	12441.804	60	Marcellus
10	2/17/2019	12071.612	12240.972	60	Marcellus
11	2/17/2019	11870.78	12040.14	60	Marcellus
12	2/18/2019	11669.948	11839.308	60	Marcellus
13	2/18/2019	11469.116	11638.476	60	Marcellus
14	2/18/2019	11268.284	11437.644	60	Marcellus
15	2/19/2019	11067.452	11236.812	60	Marcellus
16	2/19/2019	10866.62	11035.98	60	Marcellus
17	2/19/2019	10665.788	10835.148	60	Marcellus
18	2/20/2019	10464.956	10634.316	60	Marcellus
19	2/20/2019	10264.124	10433.484	60	Marcellus
20	2/20/2019	10063.292	10232.652	60	Marcellus
21	2/21/2019	9862.46	10031.82	60	Marcellus
22	2/21/2019	9661.628	9830.988	60	Marcellus
23	2/21/2019	9460.796	9630.156	60	Marcellus
24	2/22/2019	9259.964	9429.324	60	Marcellus
25	2/22/2019	9059.132	9228.492	60	Marcellus
26	2/22/2019	8858.3	9027.66	60	Marcellus
27	2/23/2019	8657.468	8826.828	60	Marcellus
28	2/23/2019	8456.636	8625.996	60	Marcellus
29	2/23/2019	8255.804	8425.164	60	Marcellus
30	2/24/2019	8054.972	8224.332	60	Marcellus
31	2/24/2019	7854.14	8023.5	60	Marcellus
32	2/25/2019	7653.308	7822.668	60	Marcellus
33	2/25/2019	7452.476	7621.836	60	Marcellus
34	2/26/2019	7251.644	7421.004	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	2/12/2019	2.35	6350	7211	4625	0	116	N/A
2	2/13/2019	77.3	8010	6297	3849	401850	8740	N/A
3	2/13/2019	79.4	8013	5520	4028	402450	8378	N/A
4	2/14/2019	74.1	8125	5864	4282	404600	8965	N/A
5	2/15/2019	74.8	7960	5590	3858	399800	8424	N/A
6	2/15/2019	77.2	7807	5866	3952	404850	8544	N/A
7	2/15/2019	77.1	8031	6299	3570	400000	8647	N/A
8	2/16/2019	78.8	8040	6409	3702	401150	8496	N/A
9	2/16/2019	77.8	8061	5934	3659	399200	8408.58	N/A
10	2/17/2019	74	8008	6186	4349	401350	8740	N/A
11	2/17/2019	71.4	7776	6153	4006	402000	8483.83	N/A
12	2/18/2019	73.5	8007	6208	3996	398800	8957	N/A
13	2/18/2019	76.8	8114	6239	3889	402150	8398	N/A
14	2/18/2019	60.3	8082	6120	3669	399100	10523.99	N/A
15	2/19/2019	78.6	7827	5855	3974	401400	9164.5	N/A
16	2/19/2019	69.7	7676	6127	4178	401050	9808.23	N/A
17	2/19/2019	69.2	7731	5919	3495	398550	9056.61	N/A
18	2/20/2019	74.6	7763	5554	3740	402400	8302	N/A
19	2/20/2019	70.3	7345	6742	3711	401050	8280	N/A
20	2/20/2019	78.7	7952	5973	8715	399050	8303.53	N/A
21	2/21/2019	82.86334	7738.438	4877	3414	399200	8299.57	N/A
22	2/21/2019	77.34016	7495.647	5420	3341	400850	8288.74	N/A
23	2/21/2019	80.1856	7722.28	5864	3626	399500	8465.29	N/A
24	2/22/2019	79.24021	7901.565	6063	4854	400400	8277.69	N/A
25	2/22/2019	82.50683	7639.041	5811	4131	400720	8192.73	N/A
26	2/22/2019	77.79852	7251.125	5120	5293	401150	9328.91	N/A
27	2/23/2019	80.4655	7818.294	5753	3994	400950	8223.69	N/A
28	2/23/2019	75.96635	7677.927	6102	3758	401250	8173.82	N/A
29	2/23/2019	71.19479	7321.832	5783	3956	400450	8276.03	N/A
30	2/24/2019	78.42328	7217.427	6048	3640	401250	8196.23	N/A
31	2/24/2019	80.72781	7234.432	5958	3446	401650	8139.59	N/A
32	2/25/2019	78.84759	7015.011	4927	3837	401250	8081.79	N/A
33	2/25/2019	81.52209	7212.189	6126	3326	400550	8250.05	N/A
34	2/26/2019	81.99905	7428.682	5819	3008	315000	7647.725	N/A
	AVG=	74	7,687	5,933	4,026	13,144,970	282,578	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	2,096	est 1,785	2,156
Big Lime	2,096	2,954	2,156	3,068
Fifty Foot Sandstone	2,954	3,056	3,068	3,175
Gordon	3,056	3,203	3,175	3,332
Fifth Sandstone	3,203	3,415	3,332	3,556
Bayard	3,415	3,941	3,556	4,107
Speechley	3,941	4,174	4,107	4,353
Balltown	4,174	4,717	4,353	4,925
Bradford	4,717	5,071	4,925	5,301
Benson	5,071	5,326	5,301	5,571
Alexander	5,326	6,314	5,571	6,637
Sycamore	6,314	6,428	6,637	6,791
Middlesex	6,428	6,546	6,791	7,020
Burkett	6,546	6,578	7,020	7,103
Tully	6,578	6,609	7,103	7,208
Marcellus	6,609	NA	7,208	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:	2/12/2019
Job End Date:	2/26/2019
State:	West Virginia
County:	Ritchie
API Number:	47-085-10336-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Graben Unit 3H
Latitude:	39.33867200
Longitude:	-80.88441400
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,683
Total Base Water Volume (gal):	12,105,653
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	100.00000	88.16970	
DWP-641	CWS	Friction Reducer					
			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	11.47585
				Calcite	471-34-1	1.00000	0.07995
				Hydrochloric acid	7647-01-0	37.00000	0.05647
				Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.03822
				Guar gum	9000-30-0	60.00000	0.03822
				Illite	12173-60-3	1.00000	0.03478
				Polymer	26100-47-0	45.00000	0.02496
				Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01664
				Goethite	1310-14-1	0.10000	0.01147
				Biotite	1302-27-8	0.10000	0.01147
				Apatite	64476-38-6	0.10000	0.01147
				Ammonium chloride	12125-02-9	11.00000	0.00610
				Polyethylene glycol mixture	25322-68-3	54.50000	0.00595
				Ilmenite	98072-94-7	0.10000	0.00348
				Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00319
				Sorbitan monooleate	1338-43-8	4.00000	0.00222
				2,2-Dibromo-3-Nitripropionamide	10222-01-2	20.00000	0.00219
				Polyethylene glycol monooleate	9004-96-0	3.00000	0.00166
				Ammonium Persulfate	7727-54-0	100.00000	0.00142
				Sorbitol tetraoleate	61723-83-9	2.00000	0.00111
				Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00096
				Amines, tallow alkyl, ethoxylated	61791-26-2	1.00000	0.00055

				Citric acid	77-92-9	60.00000	0.00051
				Sodium bromide	7647-15-6	4.00000	0.00044
				Dibromoacetonitrile	3252-43-5	3.00000	0.00033
				Alkyloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00028
				Vinylidene chloride-methyl acrylate copolymer	25038-72-6	20.00000	0.00028
				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
				Tar bases, quinolone derivs, benzyl chloride- quaternized	72480-70-7	10.00000	0.00001
				Cinnamaldehyde	104-55-2	10.00000	0.00001
				Formic acid	64-18-6	10.00000	0.00001
				Ethoxylated Alcohols	68131-39-5	10.00000	0.00001
				Organic Acid Salts	9003-04-7		Proprietary Additive Concentration
				Glycol	57-55-6		Proprietary Additive Concentration

* 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" 2.662'

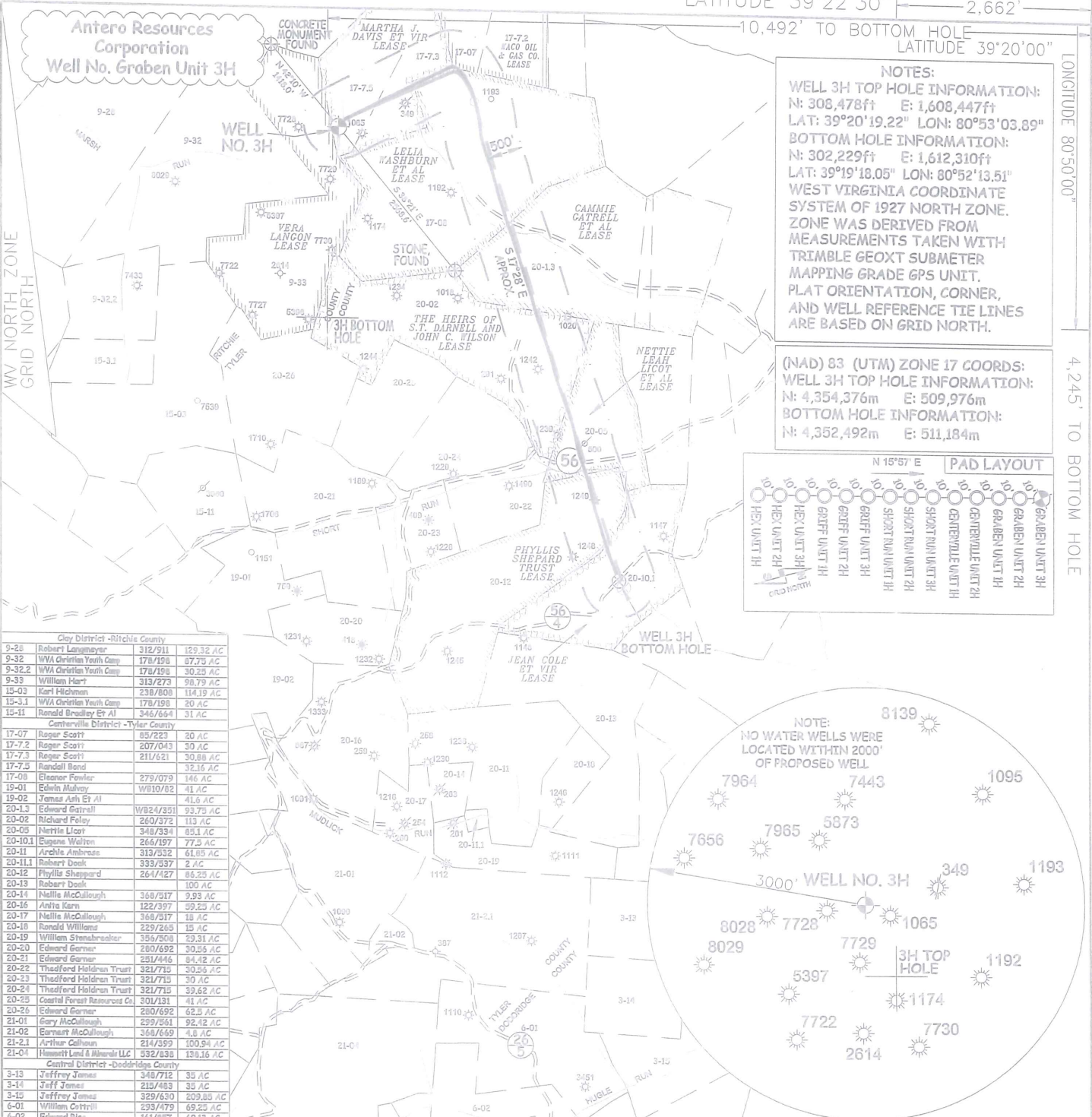
10,492' TO BOTTOM HOLE
LATITUDE 39°20'00"

LONGITUDE 80°50'00"

4,245' TO BOTTOM HOLE

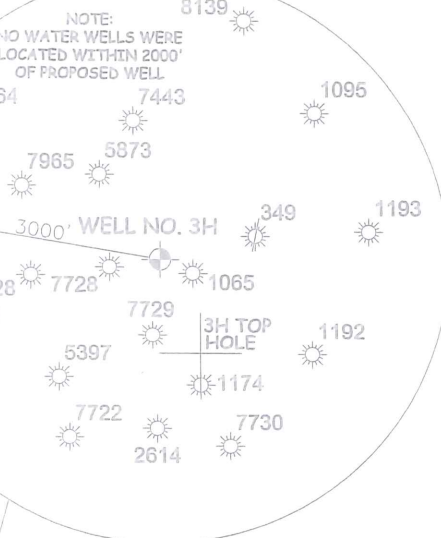
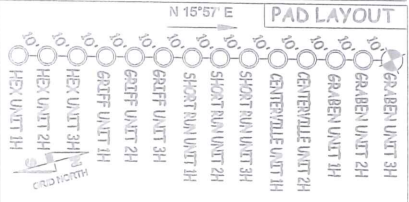
13,232'

LONGITUDE 80°52'30"



NOTES:
WELL 3H TOP HOLE INFORMATION:
 N: 308,478ft E: 1,608,447ft
 LAT: 39°20'19.22" LON: 80°53'03.89"
BOTTOM HOLE INFORMATION:
 N: 302,229ft E: 1,612,310ft
 LAT: 39°19'18.05" LON: 80°52'13.51"
 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: 4,354,376m E: 509,976m
BOTTOM HOLE INFORMATION:
 N: 4,352,492m E: 511,184m



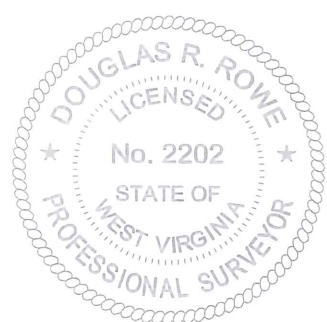
Clay District - Ritchie County		
9-20	Robert Langmeyer	312/911 129.32 AC
9-32	WVA Christian Youth Camp	178/198 87.73 AC
9-32.2	WVA Christian Youth Camp	178/198 30.25 AC
9-33	William Hart	313/273 98.79 AC
15-03	Karl Hichman	238/808 114.19 AC
15-3.1	WVA Christian Youth Camp	178/198 20 AC
15-11	Ronald Brasley Et Al	346/664 31 AC
Centerville District - Tyler County		
17-07	Roger Scott	85/223 20 AC
17-7.2	Roger Scott	207/043 30 AC
17-7.3	Roger Scott	211/621 30.88 AC
17-7.5	Randall Bond	32/16 AC
17-08	Eleanor Fowler	279/079 146 AC
19-01	Edwin Mahay	W810/82 41 AC
19-02	Jamaiah Et Al	41.6 AC
20-13	Edward Gairill	W824/351 93.75 AC
20-02	Richard Foley	260/372 113 AC
20-05	Nettie Licot	348/334 81.1 AC
20-10.1	Eugene Walten	264/197 77.5 AC
20-11	Archie Ambrose	313/332 61.85 AC
20-11.1	Robert Deak	333/337 2 AC
20-12	Phyllis Shepard	264/427 86.25 AC
20-13	Robert Deak	100 AC
20-14	Nellie McCullough	368/317 9.95 AC
20-16	Anita Kern	122/397 29.25 AC
20-17	Nellie McCullough	368/317 18 AC
20-18	Ronald Williams	229/265 15 AC
20-19	William Stensbraker	386/508 29.31 AC
20-20	Edward Garner	260/692 30.35 AC
20-21	Edward Garner	251/446 84.42 AC
20-22	Thadford Holdman Trust	321/715 30.55 AC
20-23	Thadford Holdman Trust	321/715 39 AC
20-24	Thadford Holdman Trust	321/715 39.62 AC
20-25	Coastal Forest Resources Co	301/131 41 AC
20-26	Edward Garner	260/692 62.5 AC
21-01	Gary McCullough	239/361 92.42 AC
21-02	Earnest McCullough	368/669 4.6 AC
21-2.1	Arthur Colman	214/359 100.94 AC
21-04	Hessert Land & Minerals LLC	332/638 138.16 AC
Central District - Doddridge County		
3-13	Jeffrey James	348/712 35 AC
3-14	Jeff James	215/483 35 AC
3-15	Jeffrey James	329/630 209.85 AC
6-01	William Cottrill	293/479 69.25 AC
6-02	Edward Rice	161/657 69.13 AC

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.

- NOTES:**
- 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 HEREON WAS PROVIDED BY ALECHEVY 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.



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 # 17-010WA
 DRAWING # GRABEN3H
 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

DATE 06/03/19
 OPERATOR'S WELL# GRABEN UNIT #3H

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ 47 - 085 - 10336
 (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; WACO OIL AND GAS CO.; LEASE ACREAGE 70 AC±; 150 AC±; 50 AC±; CAMMIE GATRELL ET AL; THE HEIRS OF S.T. DARNELL AND JOHN C. WILSON; NETTIE LEAH LICOT ET AL; 139.75 AC±; 113 AC±; 43 AC±; PHYLLIS SHEPARD TRUST; JEAN COLE ET VIR 86.25 AC±; 77.5 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 6,684' TVD 14,059' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
 DENVER, CO 80202 CHARLESTON, WV 25313