

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

API 47-095-02743 County Tyler District Ellsworth  
Quad Porter Falls 7.5' Pad Name Margery Field/Pool Name -----  
Farm name Kayla Leek Well Number Glamdring 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 4374231m Easting 514713m  
Landing Point of Curve Northing 4373884.95m Easting 515761.24m  
Bottom Hole Northing 4370102m Easting 517100m

Elevation (ft) 1040' 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

RECEIVED  
Office of Oil and Gas  
MAR 03 2023  
WV Department of  
Environmental Protection

Date permit issued 7/29/2021 Date drilling commenced 8/18/2021 Date drilling ceased 10/12/2021  
Date completion activities began 12/9/2021 Date completion activities ceased 2/24/2022  
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 102' Open mine(s) (Y/N) depths No  
Salt water depth(s) ft 1998' Void(s) encountered (Y/N) depths No  
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths No  
Is coal being mined in area (Y/N) No

Reviewed by:

06/02/2023

API 47-095 - 02743 Farm name Kayla Leek Well number Glamdring 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	28"	20"	125.5'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	405'	New	54#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2746'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	22764'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7173'		4.7#, P-110		
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	390 sx	15.6	1.18	460	0'	8 Hrs.
Surface	Class A	431 sx	15.6	1.20	517	0'	8 Hrs.
Coal							
Intermediate 1	Class A	951 sx	15.6	1.19	1132	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class G	3525 sx (Tail)	13.5 (Lead), 15.2(Tail)	1.26 (Tail)	4442	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 22764' MD, 6670' TVD (BHL), 6697' (Deepest Point Drilled) Loggers TD (ft) 22764' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6160'

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

RECEIVED  
Office of Oil and Gas  
MAR 03 2023

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

WV Department of Environmental Protection

06/02/2023

API 47- 095 - 02743 Farm name Kayla Leek Well number Glamdring Unit 2H

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>								

RECEIVED  
 Office of Oil and Gas  
 MAR 03 2023  
 WV Department of  
 Environmental Protection

Please insert additional pages as applicable.

06/02/2023



API 47-095-02743 Farm Name Kayla Leek Well Number Glamdring Unit 2H

**Exhibit 1**

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	12/09/2021	22645	0	60	Marcellus
2	12/09/2021	22558.97821	22380.8692	60	Marcellus
3	12/09/2021	22306.82567	22128.7167	60	Marcellus
4	12/10/2021	22054.67312	21876.5642	60	Marcellus
5	12/10/2021	21802.52058	21624.4116	60	Marcellus
6	12/10/2021	21550.36804	21372.2591	60	Marcellus
7	12/10/2021	21298.2155	21120.1065	60	Marcellus
8	12/11/2021	21046.06295	20867.954	60	Marcellus
9	12/11/2021	20793.91041	20615.8015	60	Marcellus
10	12/11/2021	20541.75787	20363.6489	60	Marcellus
11	12/11/2021	20289.60533	20111.4964	60	Marcellus
12	12/12/2021	20037.45278	19859.3438	60	Marcellus
13	12/12/2021	19785.30024	19607.1913	60	Marcellus
14	12/12/2021	19533.1477	19355.0387	60	Marcellus
15	12/12/2021	19280.99516	19102.8862	60	Marcellus
16	12/13/2021	19028.84262	18850.7337	60	Marcellus
17	12/13/2021	18776.69007	18598.5811	60	Marcellus
18	12/13/2021	18524.53753	18346.4286	60	Marcellus
19	12/13/2021	18272.38499	18094.276	60	Marcellus
20	12/13/2021	18020.23245	17842.1235	60	Marcellus
21	12/14/2021	17768.0799	17589.9709	60	Marcellus
22	12/14/2021	17515.92736	17337.8184	60	Marcellus
23	12/14/2021	17263.77482	17085.6659	60	Marcellus
24	12/15/2021	17011.62228	16833.5133	60	Marcellus
25	12/15/2021	16759.46973	16581.3608	60	Marcellus
26	12/15/2021	16507.31719	16329.2082	60	Marcellus
27	12/15/2021	16255.16465	16077.0557	60	Marcellus
28	12/16/2021	16003.01211	15824.9031	60	Marcellus
29	12/16/2021	15750.85956	15572.7506	60	Marcellus
30	12/16/2021	15498.70702	15320.5981	60	Marcellus
31	12/16/2021	15246.55448	15068.4455	60	Marcellus
32	12/17/2021	14994.40194	14816.293	60	Marcellus
33	12/17/2021	14742.24939	14564.1404	60	Marcellus
34	12/17/2021	14490.09685	14311.9879	60	Marcellus
35	12/17/2021	14237.94431	14059.8354	60	Marcellus
36	12/18/2021	13985.79177	13807.6828	60	Marcellus
37	12/18/2021	13733.63923	13555.5303	60	Marcellus
38	12/18/2021	13481.48668	13303.3777	60	Marcellus
39	12/18/2021	13229.33414	13051.2252	60	Marcellus
40	12/19/2021	12977.1816	12799.0726	60	Marcellus
41	12/19/2021	12725.02906	12546.9201	60	Marcellus
42	12/19/2021	12472.87651	12294.7676	60	Marcellus
43	12/19/2021	12220.72397	12042.615	60	Marcellus
44	12/20/2021	11968.57143	11790.4625	60	Marcellus
45	12/20/2021	11716.41889	11538.3099	60	Marcellus
46	12/20/2021	11464.26634	11286.1574	60	Marcellus
47	12/20/2021	11212.1138	11034.0048	60	Marcellus
48	12/20/2021	10959.96126	10781.8523	60	Marcellus
49	12/21/2021	10707.80872	10529.6998	60	Marcellus
50	12/21/2021	10455.65617	10277.5472	60	Marcellus
51	12/21/2021	10203.50363	10025.3947	60	Marcellus
52	12/21/2021	9951.35109	9773.24213	60	Marcellus
53	12/22/2021	9699.198547	9521.08959	60	Marcellus
54	12/22/2021	9447.046005	9268.93705	60	Marcellus
55	12/22/2021	9194.893462	9016.7845	60	Marcellus
56	12/22/2021	8942.74092	8764.63196	60	Marcellus
57	12/23/2021	8690.588378	8512.47942	60	Marcellus
58	12/23/2021	8438.435835	8260.32688	60	Marcellus
59	12/24/2021	8186.283293	8008.17433	60	Marcellus
60	12/24/2021	7934.130751	7756.02179	60	Marcellus

RECEIVED  
Office of Oil and Gas  
MAR 03 2023  
WV Department of  
Environmental Protection

06/02/2023

API 47-095-02743 Farm Name Kavla Leek Well Number Glamdring Unit 2H

**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	12/09/2021	74.4	10421	8855	3279	193490	224126	N/A
2	12/09/2021	87.6	10395	5901	4224	504560	394441	N/A
3	12/09/2021	85.4	10328	6143	3729	496550	397672	N/A
4	12/10/2021	85.8	10470	5759	3750	516110	387183	N/A
5	12/10/2021	88.1	10559	5730	4076	519340	389160	N/A
6	12/10/2021	92.7	10225	5967	4131	502450	384523	N/A
7	12/10/2021	81.5	10051	9814	4461	517870	380582	N/A
8	12/11/2021	91.0	10127	8939	3777	503260	378323	N/A
9	12/11/2021	86.5	9973	6931	4500	498880	404091	N/A
10	12/11/2021	89.0	10285	6099	4741	511420	368230	N/A
11	12/11/2021	91.7	9781	8299	4153	510420	374778	N/A
12	12/12/2021	90.3	10072	8142	4222	508310	380445	N/A
13	12/12/2021	87.6	10118	6157	4672	506900	369975	N/A
14	12/12/2021	91.6	9925	5995	4492	506550	367767	N/A
15	12/12/2021	88.9	10065	5889	4512	506120	370268	N/A
16	12/13/2021	86.4	10152	8946	4419	504340	367689	N/A
17	12/13/2021	90.8	10222	10228	4573	504110	361340	N/A
18	12/13/2021	92.2	10055	6066	4201	503390	372793	N/A
19	12/13/2021	90.0	9994	5993	3954	510890	361940	N/A
20	12/13/2021	92.0	9741	9415	3769	505910	372127	N/A
21	12/14/2021	91.7	9858	9559	4112	500740	372227	N/A
22	12/14/2021	91.2	9785	8169	4258	496760	361934	N/A
23	12/14/2021	91.6	9815	10174	4112	512840	351653	N/A
24	12/15/2021	95.9	9705	9510	3870	502260	360728	N/A
25	12/15/2021	95.9	9759	10358	9749	508390	363463	N/A
26	12/15/2021	95.0	9949	8868	4121	508500	361777	N/A
27	12/15/2021	95.7	9951	9046	3920	480180	359837	N/A
28	12/16/2021	89.8	10081	10171	4221	513460	363544	N/A
29	12/16/2021	95.4	9949	9480	4163	508130	371492	N/A
30	12/16/2021	91.9	9723	9065	3660	514460	372062	N/A
31	12/16/2021	96.9	10061	9111	4070	501490	363443	N/A
32	12/17/2021	96.3	9856	9104	4036	505820	363438	N/A
33	12/17/2021	93.8	9774	7912	4083	504720	366421	N/A
34	12/17/2021	94.7	9947	9417	3780	506610	348403	N/A
35	12/17/2021	96.7	9776	9176	3909	522500	367037	N/A
36	12/18/2021	96.7	9945	9835	3742	514026	358039	N/A
37	12/18/2021	97.7	9680	8415	4189	502500	363028	N/A
38	12/18/2021	97.9	9857	8176	3888	514590	355104	N/A
39	12/18/2021	97.0	9847	9632	3520	502840	353664	N/A
40	12/19/2021	92.6	9890	9356	3622	510210	351990	N/A
41	12/19/2021	94.6	9901	9823	3581	520480	362164	N/A
42	12/19/2021	96.0	9249	8504	3773	503710	358043	N/A
43	12/19/2021	98.7	9003	8733	4109	505180	353271	N/A
44	12/20/2021	91.5	8447	9258	3547	504630	360748	N/A
45	12/20/2021	93.4	8592	8822	3888	501130	355557	N/A
46	12/20/2021	97.4	8984	9401	4344.39	502710	368390	N/A
47	12/20/2021	95.3	8973	8794	4006	509280	372564	N/A
48	12/20/2021	97.7	9037	8492	3913	521062	371088	N/A
49	12/21/2021	97.8	9000	8536	4010	507460	367283	N/A
50	12/21/2021	97.5	8847	8107	4181.65	500170	367002	N/A
51	12/21/2021	98.5	8615	6840	4141	502800	362737	N/A
52	12/21/2021	96.2	8523	6020	4022	520930	378130	N/A
53	12/22/2021	97.2	8319	8664	4136	499380	369166	N/A
54	12/22/2021	98.3	8396	8064	4273	498220	363889	N/A
55	12/22/2021	98.2	8231	8031	4202	505670	373406	N/A
56	12/22/2021	96.9	8473	7096	3787	517280	374712	N/A
57	12/23/2021	97.0	8483	6576	3991	520760	378612	N/A
58	12/23/2021	98.7	8432.0	7443.0	4128.0	503000.0	366973.0	N/A
59	12/24/2021	97.0	8091.0	8064.0	3911.0	523260.0	377505.0	N/A
60	12/24/2021	96.3	8024.0	6715.0	3599.0	509843.0	360809.0	N/A
	<b>AVERAGE</b>	<b>93</b>	<b>9,656</b>	<b>8,268</b>	<b>4,153</b>	<b>28,081,988</b>	<b>20,494,887</b>	<b>TOTAL</b>

RECEIVED  
Office of Oil and Gas  
MAR 03 2023  
WV Department of  
Environmental Protection

06/02/2023

**EXHIBIT 3**

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Silty Sandstone	74	134	74	134
Shaley Siltstone	134	194	134	194
Shaley Sandstone	194	344	194	344
Shaley Siltstone	344	734	344	734
Sandy Siltstone	734	854	734	854
Shaley Siltstone, Tr Limestone	854	1,334	854	1,334
Shaley Sandstone	1,334	1,454	1,334	1,454
Sandstone, Tr Shale	1,454	1,634	1,454	1,634
Silty Shale	1,634	1,784	1,634	1,784
Shaley Siltstone	1,784	1,844	1,784	1,844
Sandy Shale	1,844	1,874	1,844	1,874
Shale, Tr Limestone	1,874	1,904	1,874	1,904
Shaley Limestone	1,904	1,925	1,904	2,027
Big Lime	1,951	2,739	2,027	2,951
Fifty Foot Sandstone	2,739	2,850	2,925	3,076
Gordon	2,850	3,097	3,050	3,351
Fifth Sandstone	3,097	3,231	3,325	3,501
Bayard	3,231	3,973	3,475	4,329
Speechley	3,973	4,215	4,303	4,595
Balltown	4,215	4,552	4,569	4,974
Bradford	4,552	4,960	4,948	5,432
Benson	4,960	5,258	5,406	5,753
Alexander	5,258	6,467	5,727	7,187
Sycamore	6,331	6,441	6,976	7,161
Middlesex	6,441	6,541	7,161	7,367
Burkett	6,541	6,570	7,367	7,443
Tully	6,570	6,633	7,443	7,672
Marcellus	6,633	NA	7,672	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.

RECEIVED  
Office of Oil and Gas

MAR 03 2023

WV Department of  
Environmental Protection

06/02/2023

LATITUDE 39°32'30"

10,535'

LATITUDE 39°30'00"

2,730' TO BOTTOM HOLE

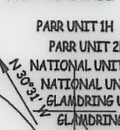
### Antero Resources Corporation Well No. Glamdring Unit 2H

**AS DRILLED DATA:**  
**WELL 2H TOP HOLE INFORMATION:**  
 N: 373,372ft E: 1,625,079ft  
 LAT: 39°31'03.04" LON: 80°49'44.44"  
**BOTTOM HOLE INFORMATION:**  
 N: 359,694ft E: 1,632,688ft  
 LAT: 39°28'48.96" LON: 80°48'04.82"  
 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 2H TOP HOLE INFORMATION:**  
 N: 4,374,231m E: 514,713m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,370,102m E: 517,100m

#### PAD LAYOUT

NOT TO SCALE



#### WELL NO. 2H

NOTE:  
12 WATER WELLS WERE LOCATED WITHIN 2000' OF THE CENTER OF PAD

LINE	BEARING	DIST.	LINE	BEARING	DIST.
L1	N 79°23' W	1820.64'	L7	N 17°11' W	1289.39'
L2	N 72°38' W	1737.73'	L8	N 14°44' W	1409.38'
L3	N 69°39' W	1680.54'	L9	N 07°35' W	1774.82'
L4	N 45°05' W	1540.95'	L10	N 03°37' W	1761.12'
L5	N 36°53' W	1627.55'	L11	N 17°55' E	1113.36'
L6	N 30°40' W	1612.05'	L12	N 48°24' E	1322.09'

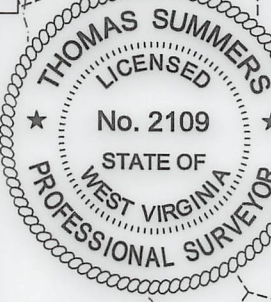
22-16.3	Charles Stevens
22-17	Dorothy Stevens Revocable Trust
22-18	Clara Baker
22-18.1	Dorothy Stevens Revocable Trust
22-21	Paul Baker
22-22	Paul Baker
22-23	Anthony Parr
22-23.1	Raymond Parr
22-23.2	Anthony Parr
22-24	Ruth Weekley Est.
22-25	Paul Baker
22-26	John Sole
22-27	Carol Knapp Revocable Trust
22-28	WSD Properties LLC
22-29	WSD Properties LLC
22-30	WSD Properties LLC
22-31	Richard Gradstky Et Al
22-32	Richard Gradstky Et Al
22-33	Wilma Weekley
22-34	Raymond Parr Et Al
22-38	Bruce Parr
22-40	Ronald Webb

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



JOB # 21-008WA  
 DRAWING # GLAMDING2HAD  
 SCALE 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

**LEGEND**  
 - - - - - Surface Owner Boundary Lines +/-  
 - - - - - Interior Surface Tracts +/-  
 O Proposed Well Path  
 O As Drilled Well Path

THOMAS SUMMERS P.S. 2109

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

DATE 04/07/22  
 OPERATOR'S WELL# GLAMDING UNIT #2H

**WELL 2H POINT OF ENTRY INFORMATION:**  
 WV STATE PLANE NAD '27 (NORTH ZONE):  
 N: 373,997ft E: 1,627,970ft  
 GEOGRAPHIC (NAD) 27:  
 LAT: 39°31'09.64" LON: 80°49'07.66"  
 (NAD) 83 (UTM) ZONE 17 COORDS:  
 N: 4,374,436m E: 515,590m

- NOTES**
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 ANTERO RESOURCES CORPORATION.
  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.

Ellsworth District - Tyler County	
11-51	Bear Knob Holdings LLC
16-5	David Leek
16-5.1	Richard Ferrell
16-6	Kayla Leek
16-7	John Thomas
16-7.1	Lianne Wilson
16-8	Jean Neel Et Al
16-9	Bear Knob Holdings LLC
16-10	Jean Neel Et Al
16-11	Jean Neel Et Al
16-15	Harvey Miller Et Al
16-16	Harvey Miller Et Al
16-16.1	Barbara Kittle
16-17	Alfred Steele
16-18	Alfred Steele
16-19	Jean Neel Et Al
16-20	Jean Neel Et Al
16-21	Kayla Leek
16-24	James Eastham
16-25	Nancy Fowler
16-26	Barbara Kittle
16-27	Gilbert Eddy
16-28	Kenneth Tomblin Et Al
16-36	George Karabetis
16-37	Rosella Murner
16-38	EQT Production Company
16-39	Richard Pyles
16-39.1	Leo Wiker
16-40	Gary Weekley
16-42	Richard Pyles
16-42.3	Richard Pyles
16-58	American Energy Marcellus Minerals LLC
22-6	EQT Production Company
22-7	Kenneth Baker
22-8	EQT Production Company
22-9	Steven Wright
22-10	Leslie Henderson
22-13	Debra Blake
22-14	Leslie Weekley
22-15	Lannie Wade Et Al
22-16	Darlene Stephens
22-16.1	Joann McSwegin
22-16.2	Sarah Bassett

WELL TYPE: OIL \_\_\_ GAS X LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ 47 \_\_\_ 095 \_\_\_ 02743  
 (IF "GAS") PRODUCTION X STORAGE \_\_\_ DEEP \_\_\_ SHALLOW X STATE COUNTY PERMIT  
 LOCATION: ELEVATION AS BUILT - 1,040' WATERSHED OUTLET MIDDLE ISLAND CREEK

QUADRANGLE PORTER FALLS 7.5' DISTRICT ELLSWORTH COUNTY TYLER  
 SURFACE OWNER KAYLA LEEK ACREAGE 69.06 ACRES +/-

OIL & GAS ROYALTY OWNER RIDGETOP CAPITAL LP; RIDGETOP CAPITAL IV LP; LEASE ACREAGE 69.06 AC.±; 43.5 AC.±;  
 RIDGETOP CAPITAL IV LP; NILE DEAN HARRIS; DOUGLAS SCOTT FUNK, SR.; ANTERO RESOURCES CORP.; JOHN E. VALENTOUR ET UX; 16.5 AC.±; 53.75 AC.±; 10 AC.±; 02743 02743  
 HARVEY J. MILLER; BRC APPALACHIAN MINERALS I LLC; S.A. SMITH & C.B. MORRIS HEIRS TRUST; BOUNTY MINERALS LLC; BETTY MOREHEAD ET VIR; 70 AC.±; 55.13 AC.±; 304.5 AC.±; 92.25 AC.±; 68.88 AC.±;  
 MORRIS MOUNTAINEER OIL & GAS LLC; BRENDA CUIC; CAROL J. KNAPP; BERNICE BAKER; JAMES A. WEEKLEY ET AL.; JANIE DENOON TRUST 45.98 AC.±; 114 AC.±; 77.5 AC.±; 45 AC.±; 58.5 AC.±; 20 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 6,670' TVD 22,764' 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

7,188' TO BOTTOM HOLE  
 8,798'  
 LONGITUDE 80°47'30"  
 LONGITUDE 80°47'30"



LATITUDE 39°32'30"

10,535'

LATITUDE 39°30'00"

2,730' TO BOTTOM HOLE

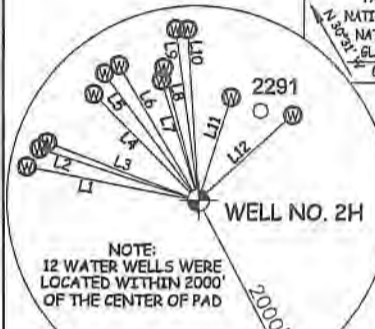
7,188' TO BOTTOM HOLE  
LONGITUDE 80°47'30"  
LONGITUDE 80°47'30"

### Antero Resources Corporation Well No. Glamdring Unit 2H

**AS DRILLED DATA:**  
**WELL 2H TOP HOLE INFORMATION:**  
 N: 373,372ft E: 1,625,079ft  
 LAT: 39°31'03.04" LON: 80°49'44.44"  
**BOTTOM HOLE INFORMATION:**  
 N: 359,694ft E: 1,632,688ft  
 LAT: 39°28'48.96" LON: 80°48'04.82"  
 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 2H TOP HOLE INFORMATION:**  
 N: 4,374,231m E: 514,713m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,370,102m E: 517,100m

#### PAD LAYOUT NOT TO SCALE



**2H TOP HOLE**

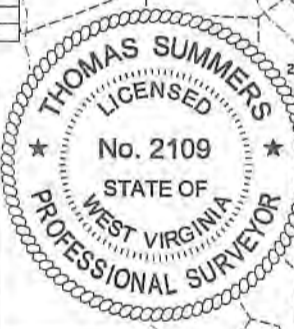
22-16.3	Charles Stevens
22-17	Dorothy Stevens Revocable Trust
22-18	Clara Baker
22-18.1	Dorothy Stevens Revocable Trust
22-21	Paul Baker
22-22	Paul Baker
22-23	Anthony Parr
22-23.1	Raymond Parr
22-23.2	Anthony Parr
22-24	Ruth Weekley Est.
22-25	Paul Baker
22-26	John Sale
22-27	Carol Knapp Revocable Trust
22-28	WSD Properties LLC
22-29	WSD Properties LLC
22-30	WSD Properties LLC
22-31	Richard Grodzky Et Al
22-32	Richard Grodzky Et Al
22-33	Wilma Weekley
22-34	Raymond Parr Et Al
22-38	Bruce Parr
22-40	Ronald Webb

LINE	BEARING	DIST.	LINE	BEARING	DIST.
L1	N 79°23' W	1820.64'	L7	N 17°11' W	1289.39'
L2	N 72°38' W	1737.73'	L8	N 14°44' W	1409.38'
L3	N 69°39' W	1680.54'	L9	N 07°35' W	1774.82'
L4	N 45°05' W	1540.95'	L10	N 03°37' W	1761.12'
L5	N 36°53' W	1627.55'	L11	N 17°55' E	1113.36'
L6	N 30°40' W	1612.05'	L12	N 48°24' E	1322.09'

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



JOB # 21-008WA  
 DRAWING # GLAMDING2HAD  
 SCALE 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

**LEGEND**  
 - - - Surface Owner Boundary Lines +/-  
 - - - Interior Surface Tracts +/-  
 O Proposed Well Path  
 O As Drilled Well Path

THOMAS SUMMERS P.S. 2109  
 DATE 04/07/22  
 OPERATOR'S WELL# GLAMDING UNIT #2H

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 095 02743  
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT  
 LOCATION: ELEVATION AS BUILT -1,040' WATERSHED OUTLET MIDDLE ISLAND CREEK

QUADRANGLE PORTER FALLS 7.5' DISTRICT ELLSWORTH COUNTY TYLER  
 SURFACE OWNER KAYLA LEEK ACREAGE 69.06 ACRES +/-

OIL & GAS ROYALTY OWNER RIDGETOP CAPITAL LP; RIDGETOP CAPITAL IV LP; LEASE ACREAGE 69.06 AC.±: 43.5 AC.±:  
 RIDGETOP CAPITAL IV LP; NILE DEAN HARRIS; DOUGLAS SCOTT FUNK, SR.; ANTERO RESOURCES CORP.; JOHN E. VALENTOUR ET UX; 16.5 AC.±: 53.75 AC.±: 10 AC.±: 20 AC.±: 80 AC.±:  
 HARVEY J. MILLER; BRC APPALACHIAN MINERALS I LLC; S.A. SMITH & C.B. MORRIS HEIRS TRUST; BOUNTY MINERALS LLC; BETTY MOREHEAD ET VIR; 70 AC.±: 55.13 AC.±: 304.5 AC.±: 92.5 AC.±: 28.62 AC.±:  
 MORRIS MOUNTAINEER OIL & GAS LLC; BRENDA CUIIC; CAROL J. KNAPP; BERNICE BAKER; JAMES A. WEEKLEY ET AL; JANIE DENOON TRUST 45.98 AC.±: 114 AC.±: 77.5 AC.±: 45 AC.±: 58.5 AC.±: 20 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 6,670' TVD 22,764' 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

Ellsworth District - Tyler County	
11-51	Bear Knob Holdings LLC
16-5	David Leek
16-5.1	Richard Ferrell
16-6	Kayla Leek
16-7	John Thomas
16-7.1	Lianne Wilson
16-8	Jean Neel Et Al
16-9	Bear Knob Holdings LLC
16-10	Jean Neel Et Al
16-11	Jean Neel Et Al
16-15	Harvey Miller Et Al
16-16	Harvey Miller Et Al
16-16.1	Barbara Kittle
16-17	Alfred Steele
16-18	Alfred Steele
16-19	Jean Neel Et Al
16-20	Jean Neel Et Al
16-21	Kayla Leek
16-24	James Eastham
16-25	Nancy Fowler
16-26	Barbara Kittle
16-27	Gilbert Eddy
16-28	Kenneth Tomblin Et Al
16-36	George Karabetis
16-37	Rosella Murner
16-38	EQT Production Company
16-39	Richard Pyles
16-39.1	Leo Wilker
16-40	Gary Weekley
16-42	Richard Pyles
16-42.3	Richard Pyles
16-58	American Energy Minerals LLC
22-6	EQT Production Company
22-7	Kenneth Baker
22-8	EQT Production Company
22-9	Steven Wright
22-10	Leslie Henderson
22-13	Debra Blake
22-14	Leslie Weekley
22-15	Lannie Wade Et Al
22-16	Darlene Stephens
22-16.1	Joann McSwain
22-16.2	Sarah Bassett

**NOTES**  
 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 ANTERO RESOURCES CORPORATION.  
 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.

**WELL 2H POINT OF ENTRY INFORMATION:**  
 WV STATE PLANE NAD '27 (NORTH ZONE):  
 N: 373,997ft E: 1,627,970ft  
 GEOGRAPHIC (NAD) 27:  
 LAT: 39°31'09.64" LON: 80°49'07.66"  
 (NAD) 83 (UTM) ZONE 17 COORDS:  
 N: 4,374,436m E: 515,590m

## Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/8/2021
Job End Date:	12/24/2021
State:	West Virginia
County:	Tyler
API Number:	47-095-02743-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	GLAMDRING UNIT 2H
Latitude:	39.51751100
Longitude:	-80.82900800
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,697
Total Base Water Volume (gal):	22,796,251
Total Base Non Water Volume:	0

RECEIVED  
 Office of Oil and Gas  
 MAR 08 2023  
 WV Department of  
 Environmental Protection



### 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
Produced Water	Halliburton	Base Fluid					
			Water	7732-18-5	100.00000	86.41920	Density = 8.50
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.05603	

MC B-8614A	MultiChem	Biocide					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
Excelerate LX-15	Halliburton	Friction Reducer					
				Listed Below			
FLUID Enviro-Syn HCR-7000-WL	Fluid Energy Group	Acid Replacement					
				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				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	13.44173	
			Complex Amine Compound	Proprietary	60.00000	0.03516	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01758	
			Proprietary	Proprietary	20.00000	0.01104	
			Proprietary	Proprietary	10.00000	0.00552	
			Guar gum	9000-30-0	100.00000	0.00421	
			Hydrochloric acid	7647-01-0	30.00000	0.00359	
			Surfactant	Proprietary	5.00000	0.00293	
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00293	
			Glutaraldehyde	111-30-8	30.00000	0.00268	
			Ethoxylated alcohols	Proprietary	5.00000	0.00059	
			Alkoxyated polyhydric alcohol	Proprietary	1.00000	0.00059	
			Organic chloride compound	Proprietary	1.00000	0.00059	
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00045	
			Ammonium persulfate	7727-54-0	100.00000	0.00017	
			Ethanol	64-17-5	1.00000	0.00009	
			Oxylated phenolic resin	Proprietary	30.00000	0.00005	
			Methanol	67-56-1	100.00000	0.00002	
			Modified thiourea polymer	Proprietary	30.00000	0.00001	
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00001	
			Acrylamide	79-06-1	0.01000	0.00001	
			Sodium glycolate	2836-32-0	0.01000	0.00001	
			Nitrated acetate salt	Proprietary	0.01000	0.00001	
			Formaldehyde	50-00-0	0.01000	0.00001	

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION

MAR 03 2023

RECEIVED  
 Office of the State Geologist

			Organic salt #1	Proprietary	0.01000	0.00001	
			Organic salt #2	Proprietary	0.01000	0.00001	
			Sodium hydroxide	1310-73-2	0.01000	0.00001	
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000	
			Propargyl alcohol	107-19-7	5.00000	0.00000	
			Hexadecene	629-73-2	5.00000	0.00000	

\* 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)

RECEIVED  
Office of Oil and Gas  
MAR 03 2023  
WV Department of  
Environmental Protection