

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

API 47 - 085 - 10517 County Ritchie District Clay
Quad Ellenboro 7.5' Pad Name Olympus Field/Pool Name -----
Farm name Nelson Mark Hayhurst Well Number Vanderhoff Unit 1H
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 4348391m Easting 499332m
Landing Point of Curve Northing 4346542.17m Easting 500211.65m
Bottom Hole Northing 4343183m Easting 501304m

Elevation (ft) 1025' 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 2/26/2024 Date drilling commenced 5/1/2024 Date drilling ceased 6/26/2024
Date completion activities began 9/12/2024 Date completion activities ceased 11/16/2024
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 173', 230' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 430' 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:

APPROVED

[Signature]
04/11/2025

API 47- 085 - 10517 Farm name Nelson Mark Hayhurst Well number Vanderhoff Unit 1H

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	91.59#, J-55	N/A	Y
Surface	17-1/2"	13-3/8"	376'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	3087'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" /8-1/2"	5-1/2"	23617'	New	23#, P-110-ICY	N/A	Y
Tubing		2-3/8"	6435'		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 ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	198 sx	15.6	1.18	234	0'	8 Hrs.
Surface	Class A	321 sx	15.6	1.19	382	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1099	15.6	1.18	1297	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	4147 sx (Tail)	13.5 (Spacer), 15.2(Tail)	1.26 (Tail)	5225	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 23,617' MD, 6,292' TVD (BHL), 6303' TVD (Deepest Point Drilled) Loggers TD (ft) 23,587' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

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Kick off depth (ft) 5,929'

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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

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API 47- 085 - 10517 Farm name Nelson Mark Hayhurst Well number Vanderhoff Unit 1H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)

***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)

***PLEASE SEE ATTACHED EXHIBIT 2**

Please insert additional pages as applicable.

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PRODUCING FORMATION(S)	DEPTHS
Marcellus	6240' (TOP) TVD 6662' (TOP) MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ☒ Open Flow OIL TEST ☒ Flow ☐ Pump

SHUT-IN PRESSURE Surface _____ psi Bottom Hole --- _____ psi DURATION OF TEST --- _____ hrs

OPEN FLOW Gas 14,349.75 mcfpd Oil 276.66 bpd NGL --- bpd Water 688.37 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 ₂ S, ETC)
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***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor H & P Drilling
Address 912 N Eagle Valley Rd City Howard State PA Zip 16841

Logging Company Nine Energy Services
Address 6500 West Fwy City Fort Worth State TX Zip 76116

Cementing Company Dowell Schlumberger
Address 525 Industrial Blvd City Sugar Land State TX Zip 77478

Stimulating Company Halliburton
Address 3000 N Sam Houston Pkwy E. City Houston State TX Zip 77032

Please insert additional pages as applicable.

Completed by Stefan Gaspar Telephone 303-357-6959
Signature  Title Permitting Agent Date 3/11/25

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

04/11/2025

API 47-085-10517 Farm Name Nelson Mark Hayhurst Well Number Vanderhoff Unit 1H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/25/2024	24036.3	23993.1	36	Marcellus
2	9/26/2024	23954.41806	23789.0083	36	Marcellus
3	9/26/2024	23753.52639	23588.1167	36	Marcellus
4	9/27/2024	23552.63472	23387.225	36	Marcellus
5	9/27/2024	23351.74306	23186.3333	36	Marcellus
6	9/28/2024	23150.85139	22985.4417	36	Marcellus
7	9/28/2024	22949.95972	22784.55	36	Marcellus
8	9/29/2024	22749.06806	22583.6583	36	Marcellus
9	9/29/2024	22548.17639	22382.7667	36	Marcellus
10	9/29/2024	22347.28472	22181.875	36	Marcellus
11	9/30/2024	22146.39306	21980.9833	36	Marcellus
12	10/1/2024	21945.50139	21780.0917	36	Marcellus
13	10/1/2024	21744.60972	21579.2	36	Marcellus
14	10/1/2024	21543.71806	21378.3083	36	Marcellus
15	10/2/2024	21342.82639	21177.4167	36	Marcellus
16	10/2/2024	21141.93472	20976.525	36	Marcellus
17	10/3/2024	20941.04306	20775.6333	36	Marcellus
18	10/3/2024	20740.15139	20574.7417	36	Marcellus
19	10/3/2024	20539.25972	20373.85	36	Marcellus
20	10/4/2024	20338.36806	20172.9583	36	Marcellus
21	10/4/2024	20137.47639	19972.0667	36	Marcellus
22	10/4/2024	19936.58472	19771.175	36	Marcellus
23	10/5/2024	19735.69306	19570.2833	36	Marcellus
24	10/5/2024	19534.80139	19369.3917	36	Marcellus
25	10/5/2024	19333.90972	19168.5	36	Marcellus
26	10/6/2024	19133.01806	18967.6083	36	Marcellus
27	10/6/2024	18932.12639	18766.7167	36	Marcellus
28	10/7/2024	18731.23472	18565.825	36	Marcellus
29	10/7/2024	18530.34306	18364.9333	36	Marcellus
30	10/7/2024	18329.45139	18164.0417	36	Marcellus
31	10/8/2024	18128.55972	17963.15	36	Marcellus
32	10/8/2024	17927.66806	17762.2583	36	Marcellus
33	10/8/2024	17726.77639	17561.3667	36	Marcellus
34	10/9/2024	17525.88472	17360.475	36	Marcellus
35	10/9/2024	17324.99306	17159.5833	36	Marcellus
36	10/9/2024	17124.10139	16958.6917	36	Marcellus
37	10/10/2024	16923.20972	16757.8	36	Marcellus
38	10/10/2024	16722.31806	16556.9083	36	Marcellus
39	10/10/2024	16521.42639	16356.0167	36	Marcellus
40	10/11/2024	16320.53472	16155.125	36	Marcellus
41	10/11/2024	16119.64306	15954.2333	36	Marcellus
42	10/12/2024	15918.75139	15753.3417	36	Marcellus
43	10/12/2024	15717.85972	15552.45	36	Marcellus
44	10/12/2024	15516.96806	15351.5583	36	Marcellus
45	10/12/2024	15316.07639	15150.6667	36	Marcellus
46	10/13/2024	15115.18472	14949.775	36	Marcellus
47	10/13/2024	14914.29306	14748.8833	36	Marcellus
48	10/13/2024	14713.40139	14547.9917	36	Marcellus
49	10/13/2024	14512.50972	14347.1	36	Marcellus
50	10/14/2024	14311.61806	14146.2083	36	Marcellus
51	10/14/2024	14110.72639	13945.3167	36	Marcellus
52	10/14/2024	13909.83472	13744.425	36	Marcellus
53	10/15/2024	13708.94306	13543.5333	36	Marcellus
54	10/15/2024	13508.05139	13342.6417	36	Marcellus
55	10/15/2024	13307.15972	13141.75	36	Marcellus
56	10/15/2024	13106.26806	12940.8583	36	Marcellus
57	10/16/2024	12905.37639	12739.9667	36	Marcellus
58	10/16/2024	12704.48472	12539.075	36	Marcellus
59	10/16/2024	12503.59306	12338.1833	36	Marcellus
60	10/16/2024	12302.70139	12137.2917	36	Marcellus
61	10/16/2024	12101.80972	11936.4	36	Marcellus
62	10/16/2024	11900.91806	11735.5083	36	Marcellus
63	10/16/2024	11700.02639	11534.6167	36	Marcellus
64	10/16/2024	11499.13472	11333.725	36	Marcellus
65	10/17/2024	11298.24306	11132.8333	36	Marcellus
66	10/17/2024	11097.35139	10931.9417	36	Marcellus
67	10/17/2024	10896.45972	10731.05	36	Marcellus
68	10/17/2024	10695.56806	10530.1583	36	Marcellus
69	10/17/2024	10494.67639	10329.2667	36	Marcellus
70	10/17/2024	10293.78472	10128.375	36	Marcellus
71	10/17/2024	10092.89306	9927.4833	36	Marcellus
72	10/17/2024	9892.001389	9726.59167	36	Marcellus
73	10/18/2024	9691.109722	9525.7	36	Marcellus
74	10/18/2024	9490.218056	9324.80833	36	Marcellus
75	10/18/2024	9289.326389	9123.91667	36	Marcellus
76	10/18/2024	9088.434722	8923.025	36	Marcellus
77	10/18/2024	8887.543056	8722.13333	36	Marcellus
78	10/18/2024	8686.651389	8521.24167	36	Marcellus
79	10/19/2024	8485.759722	8320.35	36	Marcellus
80	10/19/2024	8284.868056	8119.45833	36	Marcellus
81	10/19/2024	8083.976389	7918.56667	36	Marcellus
82	10/19/2024	7883.084722	7717.675	36	Marcellus
83	10/19/2024	7682.193056	7516.78333	36	Marcellus
84	10/19/2024	7481.301389	7315.89167	36	Marcellus
85	10/19/2024	7280.409722	7115	36	Marcellus

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API 42-085-10S12 Farm Name Nelson Mark Hayhurst Well Number Vanderhoff Unit 1H								
EXHIBIT 2								
Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	9/12/2024	76.80086	9278.549	9288.8	2060.603	168080	4907.4048	N/A
2	9/12/2024	81.94391	9697.888	6367.52	3394.048	415620	7742.5	N/A
3	9/13/2024	84.27353	9849.261	6283.34	3175.504	420940	7625.7143	N/A
4	9/13/2024	88.62892	10030.48	6487.67	3368.252	425000	7352.9524	N/A
5	9/14/2024	92.42368	10157.8	6771.32	3567.347	424620	7499.0476	N/A
6	9/14/2024	89.12616	9891.318	6355.95	3512.665	420300	7337.5	N/A
7	9/14/2024	87.13273	9698.62	6559.56	3386.735	425840	7220.2381	N/A
8	9/15/2024	80.27241	8844.046	6923.03	3433.661	418860	8389.3095	N/A
9	9/15/2024	91.99615	9872.079	6020.11	3638.766	416540	7258.4524	N/A
10	9/15/2024	95.49811	10240.95	6616.76	3802.43	423380	7390.7143	N/A
11	9/15/2024	95.26927	10280.21	6383.21	3582.806	422100	7226.7143	N/A
12	9/16/2024	83.26	9771	6196.17	3894.198	419520	9622.9762	N/A
13	9/17/2024	93.28205	10045.88	5913.5	3971	421060	7174.7619	N/A
14	9/17/2024	86.22889	9329.218	5675.41	3211.623	423440	7375.5952	N/A
15	9/17/2024	92.39524	9983.381	5800.53	2972.005	426740	7266.9524	N/A
16	9/17/2024	89.74792	9937.31	6028.52	3680	422800	7075.6429	N/A
17	9/18/2024	94.06767	10165.9	6085.89	3766	426028	7189.5	N/A
18	9/18/2024	86.94708	9413.178	5948.02	3792	431580	7110.1429	N/A
19	9/19/2024	49.97879	6058.935	5830.31	3616.516	424200	9195	N/A
20	9/19/2024	93.62611	10132	5927.35	4006	427940	7137.7143	N/A
21	9/20/2024	96.18938	10092.74	5990.08	3768	424220	7132.7857	N/A
22	9/20/2024	95.01375	9825.791	5648.14	3487.047	429300	7203.5476	N/A
23	9/20/2024	95.59878	9807.242	6422.58	3676.917	419260	7284.2381	N/A
24	9/20/2024	96.36856	9919.706	6499.85	3541.895	423940	7272.2381	N/A
25	9/20/2024	97.11334	9833.37	6108.62	3884	418600	7155.0238	N/A
26	9/21/2024	93.17193	9422.75	5813.36	4115.153	422880	7820.6667	N/A
27	9/21/2024	97.24245	9038.625	5859.59	3463.072	419460	7193.5952	N/A
28	9/21/2024	95.35054	9427.422	6275.97	3519.534	421320	7237.7619	N/A
29	9/21/2024	97.64458	10053.32	5840	3619	411060	6960.9762	N/A
30	9/22/2024	96.91069	9520.178	5135.64	3598.926	419520	7188.8095	N/A
31	9/22/2024	95.91685	9328.652	5995.44	3010.53	420100	7234.119	N/A
32	9/22/2024	95.62875	9672.055	6293.46	3204.918	425020	7209.619	N/A
33	9/22/2024	97.55657	9525.456	6029.84	3385	420280	7100.0952	N/A
34	9/23/2024	99.38703	9914.882	5952.22	3539.009	416000	7100.2143	N/A
35	9/23/2024	95.19241	9863.184	6244.02	3877	422520	7216.1429	N/A
36	9/23/2024	96.62111	9695.663	6194.86	3528	395730	6923.9048	N/A
37	9/23/2024	97.48644	9689.035	6309.52	3104.831	401100	6894.8095	N/A
38	9/24/2024	96.54294	9773.304	6391.66	3727.601	401470	7167.5238	N/A
39	9/24/2024	95.93661	9691.422	6870.88	3507.75	400040	7087.9286	N/A
40	9/24/2024	95.54326	9042.037	6300	2882.73	399970	7010.6905	N/A
41	9/25/2024	96.09142	9295.654	6384.48	3591	398990	6956.5238	N/A
42	9/25/2024	96.09756	9300.502	6675.61	3115	404300	7015.9048	N/A
43	9/25/2024	85.52299	9055.935	6951.01	2468.043	418020	7480.9048	N/A
44	9/25/2024	95.15051	9536.016	5752.42	2825.128	401360	7032.5	N/A
45	9/26/2024	94.96889	9357.61	5780.2	2733.241	411556	7007	N/A
46	9/26/2024	96.133	9237.649	5872.71	2821.32	400440	7036.6429	N/A
47	9/27/2024	89.01161	8561.39	5971.31	3171.02	400920	7031.4762	N/A
48	9/28/2024	94.33369	8659.313	5657.16	3056.815	398410	6981.9762	N/A
49	9/28/2024	96.55858	9094.155	5592.78	3517	418120	7112.5238	N/A
50	9/28/2024	95.26477	8874.803	5641.18	3472.147	401070	6940.4048	N/A
51	9/29/2024	96.49172	9232.597	6020.69	3098	411900	7151.8571	N/A
52	9/29/2024	96.53527	8857.364	6153.44	3457.993	416120	7068.7619	N/A
53	9/30/2024	93.25	8249	5702.48	4409.225	328620	7478.9286	N/A
54	10/1/2024	96.63407	8517.074	5285.67	3408.714	416520	7058.881	N/A
55	10/1/2024	96.78587	8589.433	5943.56	4444	410250	6990.0952	N/A
56	10/1/2024	97.73073	8309.136	5377.85	3888.454	395890	6832.8571	N/A
57	10/2/2024	97.06859	8306.422	5850.2	3819.896	399720	7019.4524	N/A
58	10/2/2024	98.04833	8235.19	5391.26	3867	415180	6968.619	N/A
59	10/2/2024	89.27937	8138.483	5687	3513.803	413740	8614.381	N/A
60	10/3/2024	94.31163	8071.879	5832.94	4366	388220	6739.7381	N/A
61	10/3/2024	96.96667	8094.135	5684.91	3407.357	414068	6887.7381	N/A
62	10/3/2024	96.70118	8186.6	5637.89	3619.491	419800	6989.5952	N/A
63	10/4/2024	97.40527	8262.402	5629.3	3717	415460	6894.9286	N/A
64	10/4/2024	97.90326	8350.121	5830.81	4272	422920	7092.381	N/A
65	10/5/2024	97.79096	7985.971	5706.73	3362.99	420320	8622.1667	N/A
66	10/5/2024	97.53965	7869.329	5696.98	3465	421540	6931.7381	N/A
67	10/5/2024	94.68048	7534.443	5686.64	3487.399	419120	7100.4286	N/A
68	10/6/2024	95.77689	7576.832	5626.77	3309.728	421680	7428.9286	N/A
69	10/6/2024	97.02859	8055.52	5650.49	4491	416560	6915.2619	N/A
70	10/6/2024	97.14739	7874.427	5390.73	4137.716	424880	6994.9524	N/A
71	10/7/2024	96.23785	7630.65	5765.8	3875	418380	6987.5952	N/A
72	10/7/2024	97.20991	7400.137	5603.85	3420	422010	6923.4524	N/A
73	10/8/2024	97.58599	7663.603	5740.42	3393.236	423620	6968.9762	N/A
74	10/8/2024	97.44926	7863.638	5503.72	4437	417440	6908	N/A
75	10/8/2024	97.52898	7577.114	6485.78	3640.859	397540	6781.9048	N/A
76	10/9/2024	97.64793	7239.53	5537.38	4071.12	418740	6994	N/A
77	10/9/2024	97.46098	7157.754	5322.86	3849	403980	6717.381	N/A
78	10/9/2024	97.80286	7388.983	5652.99	3475.226	402350	6819.9286	N/A
79	10/10/2024	97.52687	7277.667	5509.09	3606.544	414100	6960.4048	N/A
80	10/10/2024	97.56602	7260.725	5459.28	3857.202	396560	6573.0238	N/A
81	10/10/2024	97.23446	7005.841	5403.04	3638.755	397910	6828.9048	N/A
82	10/11/2024	97.69344	7056.302	5212.63	4042.602	403520	6838.2381	N/A
83	10/11/2024	97.05389	7163.999	5086.17	3421.527	421340	6792	N/A
84	10/11/2024	97.73059	7030.042	5920.08	2990.061	416960	6986.8333	N/A
85	8/31/2024	96.96664	7724.165	2583.46	2950.783	420360	6994	N/A
AVERAGE		93.8	8,841	5,935	3,544	34,936,882	609,946	0

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
Silty Sandstone	104	104	104	104
Silty Sandstone, Occ LS	174	174	174	174
Silty Sandstone	374	374	374	374
Sandstone. Scat SLTST, Scat LS	574	574	574	574
Silty Sandstone, tr LS	774	774	774	774
Sandy Siltstone	974	974	974	974
Sandy Siltstone	1174	1,174	1,174	1,174
Silty Sandstone, tr MICA	1374	1,374	1,374	1,374
Silty Sandstone, tr LS, tr PYR	1774	1,774	1,774	1,774
Sandy Limestone, rr Shale	1874	1,874	1,874	1,874
Big Lime	1842	1,842	1,842	1,842
Fifty Foot Sandstone	2576	2,576	2,576	2,576
Gordon	2672	2,672	2,672	2,672
Fifth Sandstone	2873	2,873	2,873	2,873
Bayard	3356	3,356	3,356	3,356
Speechley	3883	3,883	3,883	3,883
Balltown	4191	4,191	4,191	4,191
Bradford	4586	4,586	4,586	4,586
Benson	4882	4,882	4,882	4,882
Alexander	5130	5,130	5,130	5,130
Sycamore	5987	5,987	5,987	5,987
Middlesex	6080	6,080	6,080	6,080
Burkett	6184	6,184	6,184	6,184
Tully	6206	6,206	6,206	6,206
Marcellus	6214	6,214	6,214	6,214

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-2,240'-

-7,570' TO BOTTOM HOLE

Antero Resources Corporation

WELL 1H TOP HOLE INFORMATION:
N: 289,424ft E: 1,573,191ft
LAT: 39°17' 05.30" LON: 81°00' 28.49"
BOTTOM HOLE INFORMATION:
N: 272,224ft E: 1,579,377ft
LAT: 39°14'16.34" LON: 80°59' 06.21"
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 1H TOP HOLE INFORMATION:
N: 4,348,391m E: 499,332m
BOTTOM HOLE INFORMATION:
N: 4,343,183m E: 501,304m

(NAD) 27 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
N: 14,265,634ft E: 1,638,178ft
POINT OF ENTRY INFORMATION:
N: 14,264,573ft E: 1,639,155ft
BOTTOM HOLE INFORMATION:
N: 14,248,546ft E: 1,644,647ft

PAD LAYOUT NOT TO SCALE

LAMBERT UNIT 1H
 OTTER SLIDE UNIT 1H
 VANDERHOFF UNIT 1H
 BOXCAR UNIT 1H
 DOLL UNIT 1H

S 52° 18' E

GRID NORTH

0 1

W1	S 71°25' W	1358.7'
W2	S 62°13' W	1490.5'
W3	S 54°03' W	1347.9'
W4	S 48°45' W	1249.2'
W5	S 61°19' E	645.2'
W6	S 87°36' E	1455.5'

WELL NO. 1H₁

NOTE:
(6) WATER WELLS WERE
LOCATED WITHIN 2000'
OF THE CENTER OF PAD

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 # 23-029WA

DRAWING # VANDERHOFF1HAD

SCALE

MINIMUM DEGREE OF

ACCURACY SUBMETER

PROVEN SOURCE OF ELEV.

SUBMETER MAPPING GRADE GPS

STATE OF WEST VIRGINIA

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

LEGEND

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

THOMAS SUMMERS P.S. 2109

DATE 02/11/25
OPERATOR'S WELL# VANDERHOFF UNIT #1H

A circular seal with a rope-like border. The text "THOMAS SUMMERS" is at the top, "LICENSED" is below it, "No. 2109" is in the center, "STATE OF" is below the number, and "WEST VIRGINIA" is at the bottom. Two stars are on the left and right sides of the center text.

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 POLYHART HERBIVORES LOCATED WITHIN ONE HUNDRED TWENTY-FIVE (25) 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 NOTE 2 AND 3, ONLY THE INFORMATION PROVIDED TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.

5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES IN THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

WELL TYPE: OIL	GAS ☒	LIQUID INJECTION	WASTE DISPOSAL	47	085	10517
(IF "GAS") PRODUCTION	☒	STORAGE	SHALLOW	☒	STATE	COUNTY
PERMIT						
LOCATION: ELEVATION	AS BUILT - 1,025'	WATERSHED	NORTH FORK HUGHES RIVER	04/11/2025		
QUADRANGLE	ELLENBORO 7.5'	DISTRICT	CLAY	COUNTY	RITCHIE	
SURFACE OWNER	NELSON MARK HAYHURST	ACREAGE	9.65 ACRES +/-			
OIL & GAS ROYALTY OWNER	EVELYN HAYHURST	LEASE ACREAGE	9.65 ACRES±			
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	6,292' TVD 23,617' MD			
WELL OPERATOR	ANTERO RESOURCES CORP.	DESIGNATED AGENT	KEVIN ELLIS			
ADDRESS	1615 WYNKOOP ST.	ADDRESS	535 WHITE OAKS BLVD			
	DENVER, CO 80202		BRIDGEPORT, WV 26330			

FORM WW-6

DENVER, CO 80202

BRIDGEPORT, WV 26330

[illegible]

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	09/12/2024
Job End Date:	10/11/2024
State:	West Virginia
County:	Ritchie
API Number:	47-085-10517-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	VANDERHOFF Unit 1H
Latitude:	39.284882
Longitude:	-81.007746
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6303
Total Base Water Volume (gal)*:	26382680
Total Base Non Water Volume:	0



Water Source	Percent
Produced Water	100.00%

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
Excelerate LX-21	Halliburton	Friction Reducer					
FDP-S1470-23	Halliburton	Friction Reducer					
HAI-501	Halliburton	Acid Corrosion Inhibitor					
HYDROCHLORIC ACID, 28%	Halliburton	Solvent					
MC B-8123	MultiChem	Biocide					
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
Produced Water (Density 8.8)	Operator	Base Fluid					
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					

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WG-36 GELLING AGENT	Halliburton	Gelling Agent					
Items above are Trade Names. Items below are the individual ingredients.							
			Water	7732-18-5	100.00000	86.82488	None
			Crystalline silica, quartz	14808-60-7	100.00000	12.90819	None
			Water	7732-18-5	100.00000	0.22317	None
			Hydrochloric acid	7647-01-0	30.00000	0.05790	None
			Ethanaminium, N,N,N-trimethyl-2-(1-oxo-2-propen-1-yl)oxy-, chloride (1:1), polymer with 2-propenamide	69418-26-4	60.00000	0.01671	None
			Complex amine compound	Proprietary	60.00000	0.01614	None
			Guar gum	9000-30-0	100.00000	0.01066	None
			Hydrotreated light petroleum distillates	64742-47-8	30.00000	0.00835	None
			Hydrotreated distillate	Proprietary	30.00000	0.00807	None
			Ammonium chloride	12125-02-9	5.00000	0.00274	None
			Glutaraldehyde	111-30-8	30.00000	0.00243	None
			Amides, tall-oil fatty, N,N-bis(hydroxyethyl)	68155-20-4	5.00000	0.00139	None
			Ethoxylated branched C13 alcohol	78330-21-9	5.00000	0.00139	None
			Fatty nitrogen derived amides	Proprietary	5.00000	0.00134	None
			Ethoxylated alcohol	Proprietary	5.00000	0.00134	None
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	1.00000	0.00055	None
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6	1.00000	0.00055	None
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.00000	0.00041	None
			Methanol	67-56-1	100.00000	0.00023	None
			Ammonium persulfate	7727-54-0	100.00000	0.00020	None
			Citric acid	77-92-9	1.00000	0.00008	None
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00007	None
			Modified thiourea polymer	Proprietary	30.00000	0.00007	None
			Oxylated phenolic resin	Proprietary	30.00000	0.00006	None

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			Propargyl alcohol	107-19-7	5.00000	0.00001	None
			Hexadecene	629-73-2	5.00000	0.00001	None
			Ethoxylated alcohols	Proprietary	5.00000	0.00001	None
			C.I. pigment Orange 5	3468-63-1	1.00000	0.00000	None

* 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%

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)

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