

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

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Reviewed

Reviewed by:
J.N. 12-8-25
03/13/2026

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

Kick off depth (ft) 5,929'

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

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

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WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED N/A

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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6214' (TOP)</u>	<u>TVD</u>	<u>6636' (TOP)</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____

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	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 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 Carly Wren Telephone 303-357-7373
Signature *CW* Title Permitting Agent Date 5/19/2025

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

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EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/12/2024	23532.3	23488.3	36	Marcellus
2	9/12/2024	23449.36285	23282.6771	36	Marcellus
3	9/13/2024	23246.93996	23080.2542	36	Marcellus
4	9/13/2024	23044.51707	22877.8313	36	Marcellus
5	9/14/2024	22842.09418	22675.4084	36	Marcellus
6	9/14/2024	22639.67129	22472.9855	36	Marcellus
7	9/14/2024	22437.24839	22270.5627	36	Marcellus
8	9/15/2024	22234.8255	22068.1398	36	Marcellus
9	9/15/2024	22032.40261	21865.7169	36	Marcellus
10	9/15/2024	21829.97972	21663.294	36	Marcellus
11	9/15/2024	21627.55683	21460.8711	36	Marcellus
12	9/16/2024	21425.13394	21258.4482	36	Marcellus
13	9/17/2024	21222.71104	21056.0253	36	Marcellus
14	9/17/2024	21020.28815	20853.6024	36	Marcellus
15	9/17/2024	20817.86526	20651.1795	36	Marcellus
16	9/17/2024	20615.44237	20448.7566	36	Marcellus
17	9/18/2024	20413.01948	20246.3337	36	Marcellus
18	9/18/2024	20210.59659	20043.9108	36	Marcellus
19	9/19/2024	20008.17369	19841.488	36	Marcellus
20	9/19/2024	19805.7508	19639.0651	36	Marcellus
21	9/20/2024	19603.32791	19436.6422	36	Marcellus
22	9/20/2024	19400.90502	19234.2193	36	Marcellus
23	9/20/2024	19198.48213	19031.7964	36	Marcellus
24	9/20/2024	18996.05924	18829.3735	36	Marcellus
25	9/20/2024	18793.63635	18626.9506	36	Marcellus
26	9/21/2024	18591.21345	18424.5277	36	Marcellus
27	9/21/2024	18388.79056	18222.1048	36	Marcellus
28	9/21/2024	18186.36767	18019.6819	36	Marcellus
29	9/21/2024	17983.94478	17817.259	36	Marcellus
30	9/22/2024	17781.52189	17614.8361	36	Marcellus
31	9/22/2024	17579.099	17412.4133	36	Marcellus
32	9/22/2024	17376.6761	17209.9904	36	Marcellus
33	9/22/2024	17174.25321	17007.5675	36	Marcellus
34	9/23/2024	16971.83032	16805.1446	36	Marcellus
35	9/23/2024	16769.40743	16602.7217	36	Marcellus
36	9/23/2024	16566.98454	16400.2988	36	Marcellus
37	9/23/2024	16364.56165	16197.8759	36	Marcellus
38	9/24/2024	16162.13876	15995.453	36	Marcellus
39	9/24/2024	15959.71586	15793.0301	36	Marcellus
40	9/24/2024	15757.29297	15590.6072	36	Marcellus
41	9/25/2024	15554.87008	15388.1843	36	Marcellus
42	9/25/2024	15352.44719	15185.7614	36	Marcellus
43	9/25/2024	15150.0243	14983.3386	36	Marcellus
44	9/25/2024	14947.60141	14780.9157	36	Marcellus
45	9/26/2024	14745.17851	14578.4928	36	Marcellus
46	9/26/2024	14542.75562	14376.0699	36	Marcellus
47	9/27/2024	14340.33273	14173.647	36	Marcellus
48	9/28/2024	14137.90984	13971.2241	36	Marcellus
49	9/28/2024	13935.48695	13768.8012	36	Marcellus
50	9/28/2024	13733.06406	13566.3783	36	Marcellus
51	9/29/2024	13530.64116	13363.9554	36	Marcellus
52	9/29/2024	13328.21827	13161.5325	36	Marcellus
53	9/30/2024	13125.79538	12959.1096	36	Marcellus
54	10/1/2024	12923.37249	12756.6867	36	Marcellus
55	10/1/2024	12720.9496	12554.2639	36	Marcellus
56	10/1/2024	12518.52671	12351.841	36	Marcellus
57	10/2/2024	12316.10382	12149.4181	36	Marcellus
58	10/2/2024	12113.68092	11946.9952	36	Marcellus
59	10/2/2024	11911.25803	11744.5723	36	Marcellus
60	10/3/2024	11708.83514	11542.1494	36	Marcellus
61	10/3/2024	11506.41225	11339.7265	36	Marcellus
62	10/3/2024	11303.98936	11137.3036	36	Marcellus
63	10/4/2024	11101.56647	10934.8807	36	Marcellus
64	10/4/2024	10899.14357	10732.4578	36	Marcellus
65	10/5/2024	10696.72068	10530.0349	36	Marcellus
66	10/5/2024	10494.29779	10327.612	36	Marcellus
67	10/5/2024	10291.8749	10125.1892	36	Marcellus
68	10/6/2024	10089.45201	9922.76627	36	Marcellus
69	10/6/2024	9887.029116	9720.34337	36	Marcellus
70	10/6/2024	9684.606225	9517.92048	36	Marcellus
71	10/7/2024	9482.183333	9315.49759	36	Marcellus
72	10/7/2024	9279.760442	9113.0747	36	Marcellus
73	10/8/2024	9077.33755	8910.65181	36	Marcellus
74	10/8/2024	8874.914659	8708.22892	36	Marcellus
75	10/8/2024	8672.491767	8505.80602	36	Marcellus
76	10/9/2024	8470.068876	8303.38313	36	Marcellus
77	10/9/2024	8267.645984	8100.96024	36	Marcellus
78	10/9/2024	8065.223092	7898.53735	36	Marcellus
79	10/10/2024	7862.800201	7696.11446	36	Marcellus
80	10/10/2024	7660.377309	7493.69157	36	Marcellus
81	10/10/2024	7457.954418	7291.26867	36	Marcellus
82	10/11/2024	7255.531526	7088.84578	36	Marcellus
83	10/11/2024	7053.106635	6886.42289	36	Marcellus
84	10/11/2024	6850.685743	6684	36	Marcellus

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EXHIBIT 2									
Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Visk 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	420900	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	86.94208	9413.178	5948.02	3792	431580	7110.1429	N/A	
19	9/19/2024	99.47879	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	7137.7619	N/A	
29	9/21/2024	97.84458	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	6619.9286	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	
	AVERAGE	93.9	8,855	5,975	3,551	34,516,522	602,952	TOTAL	

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Silty Sandstone	104	174	104	174
Silty Sandstone, Occ LS	174	374	174	374
Silty Sandstone	374	574	374	574
Sandstone. Scat SLTST, Scat LS	574	774	574	774
Silty Sandstone, tr LS	774	974	774	974
Sandy Siltstone	974	1,174	974	1,174
Sandy Siltstone	1174	1,374	1,174	1,374
Silty Sandstone, tr MICA	1374	1,774	1,374	1,774
Silty Sandstone, tr LS, tr PYR	1774	1,874	1,774	1,874
Sandy Limestone, rr Shale	1874	1,816	1,874	1,818
Big Lime	1842	2,576	1,818	2,578
Fifty Foot Sandstone	2576	2,672	2,552	2,674
Gordon	2672	2,873	2,648	2,875
Fifth Sandstone	2873	3,356	2,849	3,358
Bayard	3356	3,883	3,332	3,901
Speechley	3883	4,191	3,875	4,234
Balltown	4191	4,586	4,208	4,666
Bradford	4586	4,882	4,640	4,988
Benson	4882	5,130	4,962	5,260
Alexander	5130	6,106	5,234	6,372
Sycamore	5987	6,080	6,208	6,346
Middlesex	6080	6,184	6,346	6,557
Burkett	6184	6,206	6,557	6,614
Tully	6206	6,214	6,614	6,636
Marcellus	6214	NA	6,636	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.

**Antero drilled a small portion of this well less than 5 feet into the Onondaga formation from approximately 11,382'-11,602' and 12,765'-13,013' in the lateral but this section was not perforated or completed.

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