

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

API 47 - 085 - 10519 County Ritchie District Clay
Quad Ellenboro 7.5' Pad Name Olympus Field/Pool Name -----
Farm name Nelson Mark Hayhurst Well Number Otterslide 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 4348394m Easting 499328m
Landing Point of Curve Northing 4347630.05m Easting 499436.59m
Bottom Hole Northing 4342429m Easting 501234m

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 7/6/2024
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 by:

APPROVED

04/04/2025

API 47-085 - 10519 Farm name Nelson Mark Hayhurst Well number Otterslide 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"	381'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	3060'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" /8-1/2"	5-1/2"	25858'	New	23#, P-110-ICY	N/A	Y
Tubing		2-3/8"	6406'		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	1098 sx	15.6	1.18	1296	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	5100 sx (Tail)	13.5 (Spacer), 15.2(Tail)	1.26 (Tail)	6426	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 25,858' MD, 6,290' TVD (BHL), 6,302' TVD (Deepest Point Drilled) Loggers TD (ft) 25,828' MD
Deepest formation penetrated Marcellus Plug back to (ft) N/A
Plug back procedure N/A

Kick off depth (ft) 5,832'

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 - 10519 Farm name Nelson Mark Hayhurst Well number Otterslide 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**

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PRODUCING FORMATION(S)	DEPTHS		
Marcellus	6228' (TOP)	TVD	6701' (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 13,711.67 mcfpd Oil 249.68 bpd NGL --- bpd Water 593.40 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 *S Gaspar* Title Permitting Agent Date 3/11/25

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

04/04/2025

API 47-085-10519 Farm Name Nelson Mark Hayhurst Well Number Otterside Unit 1H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/12/2024	25772.9	25730.6	36	Marcellus
2	9/12/2024	25691.70426	25525.2255	36	Marcellus
3	9/13/2024	25489.52979	25323.0511	36	Marcellus
4	9/13/2024	25287.35532	25120.8766	36	Marcellus
5	9/14/2024	25085.18085	24918.7021	36	Marcellus
6	9/14/2024	24883.00638	24716.5277	36	Marcellus
7	9/14/2024	24680.83191	24514.3532	36	Marcellus
8	9/15/2024	24478.65745	24312.1787	36	Marcellus
9	9/15/2024	24276.48298	24110.0043	36	Marcellus
10	9/15/2024	24074.30851	23907.8298	36	Marcellus
11	9/15/2024	23872.13404	23705.6553	36	Marcellus
12	9/16/2024	23669.95957	23503.4809	36	Marcellus
13	9/17/2024	23467.78511	23301.3064	36	Marcellus
14	9/17/2024	23265.61064	23099.1319	36	Marcellus
15	9/17/2024	23063.43617	22896.9574	36	Marcellus
16	9/17/2024	22861.2617	22694.783	36	Marcellus
17	9/18/2024	22659.08723	22492.6085	36	Marcellus
18	9/18/2024	22456.91277	22290.434	36	Marcellus
19	9/19/2024	22254.7383	22088.2596	36	Marcellus
20	9/19/2024	22052.56383	21886.0851	36	Marcellus
21	9/19/2024	21850.38936	21683.9106	36	Marcellus
22	9/20/2024	21648.21489	21481.7362	36	Marcellus
23	9/20/2024	21446.04043	21279.5617	36	Marcellus
24	9/20/2024	21243.86596	21077.3872	36	Marcellus
25	9/20/2024	21041.69149	20875.2128	36	Marcellus
26	9/21/2024	20839.51702	20673.0383	36	Marcellus
27	9/21/2024	20637.34255	20470.8638	36	Marcellus
28	9/21/2024	20435.16809	20268.6894	36	Marcellus
29	9/21/2024	20232.99362	20066.5149	36	Marcellus
30	9/22/2024	20030.81915	19864.3404	36	Marcellus
31	9/22/2024	19828.64468	19662.166	36	Marcellus
32	9/22/2024	19626.47021	19459.9915	36	Marcellus
33	9/22/2024	19424.29574	19257.817	36	Marcellus
34	9/23/2024	19222.12128	19055.6426	36	Marcellus
35	9/23/2024	19019.94681	18853.4681	36	Marcellus
36	9/23/2024	18817.77234	18651.2936	36	Marcellus
37	9/23/2024	18615.59787	18449.1191	36	Marcellus
38	9/24/2024	18413.4234	18246.9447	36	Marcellus
39	9/24/2024	18211.24894	18044.7702	36	Marcellus
40	9/24/2024	18009.07447	17842.5957	36	Marcellus
41	9/24/2024	17806.9	17640.4213	36	Marcellus
42	9/25/2024	17604.72553	17438.2468	36	Marcellus
43	9/25/2024	17402.55106	17236.0723	36	Marcellus
44	9/25/2024	17200.3766	17033.8979	36	Marcellus
45	9/26/2024	16998.20213	16831.7234	36	Marcellus
46	9/26/2024	16796.02766	16629.5489	36	Marcellus
47	9/27/2024	16593.85319	16427.3745	36	Marcellus
48	9/27/2024	16391.67872	16225.2	36	Marcellus
49	9/28/2024	16189.50426	16023.0255	36	Marcellus
50	9/28/2024	15987.32979	15820.8511	36	Marcellus
51	9/29/2024	15785.15532	15618.6766	36	Marcellus
52	9/29/2024	15582.98085	15416.5021	36	Marcellus
53	9/30/2024	15380.80638	15214.3277	36	Marcellus
54	9/30/2024	15178.63191	15012.1532	36	Marcellus
55	10/1/2024	14976.45745	14809.9787	36	Marcellus
56	10/1/2024	14774.28298	14607.8043	36	Marcellus
57	10/2/2024	14572.10851	14405.6298	36	Marcellus
58	10/2/2024	14369.93404	14203.4553	36	Marcellus
59	10/2/2024	14167.75957	14001.2809	36	Marcellus
60	10/3/2024	13965.58511	13799.1064	36	Marcellus
61	10/3/2024	13763.41064	13596.9319	36	Marcellus
62	10/3/2024	13561.23617	13394.7574	36	Marcellus
63	10/4/2024	13359.0617	13192.583	36	Marcellus
64	10/4/2024	13156.88723	12990.4085	36	Marcellus
65	10/5/2024	12954.71277	12788.234	36	Marcellus
66	10/5/2024	12752.5383	12586.0596	36	Marcellus
67	10/5/2024	12550.36383	12383.8851	36	Marcellus
68	10/6/2024	12348.18936	12181.7106	36	Marcellus
69	10/6/2024	12146.01489	11979.5362	36	Marcellus
70	10/6/2024	11943.84043	11777.3617	36	Marcellus
71	10/7/2024	11741.66596	11575.1872	36	Marcellus
72	10/7/2024	11539.49149	11373.0128	36	Marcellus
73	10/8/2024	11337.31702	11170.8383	36	Marcellus
74	10/8/2024	11135.14255	10968.6638	36	Marcellus
75	10/8/2024	10932.96809	10766.4894	36	Marcellus
76	10/8/2024	10730.79362	10564.3149	36	Marcellus
77	10/9/2024	10528.61915	10362.1404	36	Marcellus
78	10/9/2024	10326.44468	10159.966	36	Marcellus
79	10/10/2024	10124.27021	9957.79149	36	Marcellus
80	10/10/2024	9922.095745	9755.61702	36	Marcellus
81	10/10/2024	9719.921277	9553.44255	36	Marcellus
82	10/11/2024	9517.746809	9351.26809	36	Marcellus
83	10/11/2024	9315.57234	9149.09362	36	Marcellus
84	10/11/2024	9113.397872	8946.91915	36	Marcellus
85	10/12/2024	8911.223404	8744.74468	36	Marcellus
86	10/12/2024	8709.048936	8542.57021	36	Marcellus
87	10/12/2024	8506.874468	8340.39574	36	Marcellus
88	10/12/2024	8304.7	8138.22128	36	Marcellus
89	10/13/2024	8102.525532	7936.04681	36	Marcellus
90	10/13/2024	7900.351064	7733.87234	36	Marcellus
91	10/13/2024	7698.176596	7531.69787	36	Marcellus
92	10/14/2024	7496.002128	7329.5234	36	Marcellus
93	10/14/2024	7293.82766	7127.34894	36	Marcellus
94	10/14/2024	7091.653191	6925.17447	36	Marcellus
95	10/14/2024	6889.478723	6723	36	Marcellus

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API 47-085-10513 Farm Name Nelson Mark Haghurst Well Number Granddaddy Unit 14									
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	9/12/2024	73.67126	9766.427	5166.81	2742.261	159586	5567	N/A	
2	9/12/2024	82.08137	9778.627	6438.78	3679.16	421320	7920.3333	N/A	
3	9/13/2024	80.08287	9699.246	6317.59	3508.802	418760	8873.119	N/A	
4	9/13/2024	84.8942	10256.77	6311.41	3636.261	420600	7430.9762	N/A	
5	9/14/2024	89.39927	10302.62	6318.99	3714.005	425860	7680.6667	N/A	
6	9/14/2024	87.05553	9927.704	6154.55	3475.038	421320	7233.7143	N/A	
7	9/14/2024	90.51082	10323.42	5707.08	3549.788	425440	7296.2619	N/A	
8	9/15/2024	20.3821	2480.349	6182.86	4239.279	420740	11123.833	N/A	
9	9/15/2024	93.6561	10188.51	6020.88	3335.223	419020	7297.0238	N/A	
10	9/15/2024	89.45156	9959.206	6228.87	3543.324	418740	7312.9286	N/A	
11	9/15/2024	92.97882	10496.21	6229.23	3975	417580	7269.2381	N/A	
12	9/16/2024	88.61194	10025.37	6144.19	3824.509	415680	7601.5	N/A	
13	9/17/2024	87.4129	10167.93	6605.43	3767	422060	7163.3095	N/A	
14	9/17/2024	89.27845	10074.65	6085.96	3378.593	420400	7362.6429	N/A	
15	9/17/2024	90.49379	10199.6	6225.78	3166.344	429200	7431.7619	N/A	
16	9/17/2024	93.40081	10446.77	6729.23	3636	424340	7261.0238	N/A	
17	9/18/2024	93.74896	10544.06	6491.86	3808	416700	7082.2619	N/A	
18	9/18/2024	90.07702	9942.875	6193.67	3432.952	420880	8445.7619	N/A	
19	9/19/2024	94.89631	10325.08	6209.83	3340.529	424820	7349.2381	N/A	
20	9/19/2024	95.20926	10302.53	5986.16	3689.677	425300	7535.2143	N/A	
21	9/19/2024	95.1237	10338.82	5993.19	3787.32	424940	7144.8333	N/A	
22	9/20/2024	96.45472	10357.83	6001.72	4028.321	423640	7292.8095	N/A	
23	9/20/2024	95.1413	10146.96	5892.6	3747.277	420880	7308.8333	N/A	
24	9/20/2024	96.45095	10103.82	5825.17	3850.151	422720	7356.5	N/A	
25	9/20/2024	94.54268	10257.66	6059.85	3560.254	426500	7171.7619	N/A	
26	9/21/2024	98.3603	10459.56	6105.63	3685.799	423180	7142.0238	N/A	
27	9/21/2024	95.78895	9578.268	5948.21	3161.727	422080	7296.5	N/A	
28	9/21/2024	96.05894	9773.518	6249.3	3423.302	419140	7163.7381	N/A	
29	9/21/2024	96.81021	10142.96	5924.1	3623.93	421660	7139.9048	N/A	
30	9/22/2024	95.15865	10066.18	5525.92	3407	425320	7161.4524	N/A	
31	9/22/2024	93.86136	10013.85	6537.51	3517	421140	7080.0476	N/A	
32	9/22/2024	95.53168	10096.01	6445	3120.101	427240	7348.2143	N/A	
33	9/22/2024	95.8094	10021	6449.62	3522.708	422640	7133.2143	N/A	
34	9/23/2024	96.42721	9753.568	5819.94	3538.839	420540	7049.1905	N/A	
35	9/23/2024	98.06116	10209.24	6474.75	2968.369	426080	7279.0238	N/A	
36	9/23/2024	95.51695	10058.28	7011.64	3037.176	420100	7227.3571	N/A	
37	9/23/2024	95.32214	9948.085	6391.08	3407.663	397900	7573.2619	N/A	
38	9/24/2024	95.50906	10002.73	6535.08	3181.28	400950	6846.9762	N/A	
39	9/24/2024	95.18774	9883.804	6688.27	2713.973	402100	7047.2619	N/A	
40	9/24/2024	95.65495	9783.826	7976.17	3046.866	403100	7066.6667	N/A	
41	9/24/2024	94.62508	9425.839	6255.95	3060.616	400010	7032.8095	N/A	
42	9/25/2024	95.89246	9910.134	7332.4	2872	397840	6993.9524	N/A	
43	9/25/2024	95.09482	10055.97	6716.96	2746.579	416480	7203.5714	N/A	
44	9/25/2024	95.11976	10090.02	6804.75	2933	401260	7031	N/A	
45	9/26/2024	93.97715	9192.214	5864.67	2749.905	418820	7325.1429	N/A	
46	9/26/2024	97.55272	9588.249	6361.95	3127.057	402240	7110.9048	N/A	
47	9/27/2024	96.82793	9556.265	6155.88	3022.275	397840	7029.6905	N/A	
48	9/27/2024	95.35611	9624.99	6668.3	3091.522	394765	6969.7619	N/A	
49	9/28/2024	96.45115	9463.088	6203.83	2903.954	413880	7310.381	N/A	
50	9/28/2024	97.28113	9359.676	5815.72	3143.64	392610	6933.8095	N/A	
51	9/29/2024	93.74745	9450.543	6246.88	2578.421	400470	6956.0714	N/A	
52	9/29/2024	96.58693	9719.204	6360.64	2524.359	411840	7111.4524	N/A	
53	9/30/2024	94.86793	9125.214	5947.81	3236.178	400840	7061.8333	N/A	
54	9/30/2024	96.48072	9297.956	6407.33	3399.624	410740	7020.8095	N/A	
55	10/1/2024	97.59745	9179.909	5965.28	3495	413760	7044.7381	N/A	
56	10/1/2024	97.4014	9138.209	6244.67	3733	395970	7069.0952	N/A	
57	10/2/2024	97.05331	9025.455	5602.52	3424.517	396248	6844.1905	N/A	
58	10/2/2024	95.19314	8919.542	5475.48	4256	414280	6933.0714	N/A	
59	10/2/2024	97.3402	8737.069	5561.69	3386.791	421420	6996.7857	N/A	
60	10/3/2024	95.99923	8986.97	5965.44	3371.047	403040	7028.1429	N/A	
61	10/3/2024	96.6657	8812.029	6734.15	3564.444	418400	7054.6905	N/A	
62	10/3/2024	97.34263	8857.362	6455.46	3462.169	419920	7004.1429	N/A	
63	10/4/2024	96.46838	8661.535	5915.5	2892.318	413580	7259.4048	N/A	
64	10/4/2024	96.26417	8434.823	6851	4001	420280	7067.881	N/A	
65	10/5/2024	97.3093	8819.088	6974.86	3625.176	426560	7081.4762	N/A	
66	10/5/2024	96.45932	9124.26	6459.75	3156	415980	6991.2857	N/A	
67	10/5/2024	92.54116	9221.005	6605.34	3148.083	416820	6968.6567	N/A	
68	10/6/2024	93.7416	8476.843	6775.29	3689.945	419580	6932.6429	N/A	
69	10/6/2024	97.05099	8505.172	5538.09	3577	423860	6969.4762	N/A	
70	10/6/2024	97.38955	8134.795	5631.22	3882.142	421620	7408.0476	N/A	
71	10/7/2024	98.0742	8282.589	5998.7	4214	421380	6975.3095	N/A	
72	10/7/2024	98.13061	7985.434	6483.66	4243	417120	6886.4524	N/A	
73	10/8/2024	97.56017	7883.784	6113.36	3218.927	424500	6980	N/A	
74	10/8/2024	97.33254	8439.862	5650.97	4269	417440	6507.1429	N/A	
75	10/8/2024	96.19704	9070.774	6107	3495.982	401080	6738	N/A	
76	10/8/2024	97.16562	8414.423	5554.29	3467.254	415320	6928.4286	N/A	
77	10/9/2024	98.43998	8444.594	6063.29	3199	417820	6881	N/A	
78	10/9/2024	97.5798	8590.297	6883.25	2848.334	401110	6814.9286	N/A	
79	10/10/2024	98.06999	8301.454	5713.84	3891.298	400920	6845.119	N/A	
80	10/10/2024	99.59555	7962.507	5104.57	3307.927	406460	6345.6905	N/A	
81	10/10/2024	97.81189	7695.109	5596.06	3678.151	400050	6630.7619	N/A	
82	10/11/2024	97.47547	7580.977	5538.86	3663.875	403340	6808.2143	N/A	
83	10/11/2024	97.7947	7786.945	5634.99	4576	413500	6852.3333	N/A	
84	10/11/2024	97.00992	7375.409	5959.18	3125.39	403860	6923.7619	N/A	
85	10/12/2024	97.92113	7637.813	6065.58	3274.195	419140	6909.9048	N/A	
86	10/12/2024	96.73525	7732.596	5331.58	3266.513	418440	6888.0238	N/A	
87	10/12/2024	97.5404	7591.572	5509.87	3147.692	403390	6760.3333	N/A	
88	10/12/2024	97.37297	7471.889	5456.96	3046.828	421520	6912.4524	N/A	
89	10/13/2024	97.68134	7253.519	5438.71	4017.707	403030	6573.0714	N/A	
90	10/13/2024	98.84178	7296.248	5367.63	3848	406070	6657.9286	N/A	
91	10/13/2024	97.89132	7211.726	5448.19	3625.133	404520	6740.1905	N/A	
92	10/14/2024	97.30538	7087.587	5707.23	2824.036	399640	6650.4524	N/A	
93	10/14/2024	97.74329	7208.327	5810.71	3397	415780	6466.0476	N/A	
94	10/14/2024	98.77649	7014.057	6386.47	3758.237	397440	6528.4286	N/A	
95	10/14/2024	96.22683	6715.34	5408.81	3090.315	401870	6650.2381	N/A	
AVERAGE		94.2	9,107	6,125	3,442	39,075,973	676,867	0	

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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	1,174	1,374	1,174	1,374
Silty Sandstone, tr MICA	1,374	1,774	1,374	1,774
Silty Sandstone, tr LS, tr PYR	1,774	1,874	1,774	1,874
Sandy Limestone, rr Shale	1,874	1,814	1,874	1,814
Big Lime	1,840	2,563	1,814	2,564
Fifty Foot Sandstone	2,563	2,679	2,538	2,679
Gordon	2,679	2,871	2,653	2,872
Fifth Sandstone	2,871	3,355	2,846	3,356
Bayard	3,355	3,879	3,330	3,890
Speechley	3,879	4,187	3,864	4,216
Balltown	4,187	4,588	4,190	4,650
Bradford	4,588	4,880	4,624	4,968
Benson	4,880	5,111	4,942	5,221
Alexander	5,111	6,094	5,195	6,373
Sycamore	5,977	6,068	6,203	6,347
Middlesex	6,068	6,173	6,347	6,583
Burkett	6,173	6,195	6,583	6,650
Tully	6,195	6,202	6,650	6,675
Marcellus	6,202	NA	6,675	NA

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LATITUDE 39°17'30"

2,252'

LATITUDE 39°15'00"

7,802' TO BOTTOM HOLE

LONGITUDE 81°00'00"

6,893' TO BOTTOM HOLE

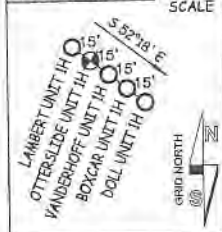
LONGITUDE 80°57'30"

Antero Resources Corporation
Well No. Otterslide #1H**AS DRILLED DATA:**

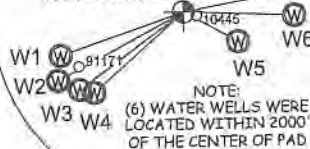
WELL 1H TOP HOLE INFORMATION:
N: 289,433ft E: 1,573,179ft
LAT: 39°17'05.39" LON: 81°00'28.64"
BOTTOM HOLE INFORMATION:
N: 269,754ft E: 1,579,105ft
LAT: 39°13'51.88" LON: 80°59'09.15"
WEST VIRGINIA COORDINATE
SYSTEM OF 1927 NORTH ZONE.
ZONE WAS DERIVED FROM
MEASUREMENTS TAKEN WITH
TRIMBLE GEOXT SUBMETER
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: 4,348,394m E: 499,328m
BOTTOM HOLE INFORMATION:
N: 4,342,429m E: 501,234m

(NAD) 27 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
N: 14,265,643ft E: 1,638,165ft
POINT OF ENTRY INFORMATION:
N: 14,264,187ft E: 1,638,226ft
BOTTOM HOLE INFORMATION:
N: 14,246,072ft E: 1,644,417ft

PAD LAYOUTNOT TO
SCALE

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	1155.5'

WELL NO. 1H

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 # 23-028WA

DRAWING # OTTERSIDE1HAD

SCALE 1" = 2000'

MINIMUM DEGREE OF
ACCURACY SUBMETERPROVEN SOURCE OF ELEV.
SUBMETER MAPPING GRADE GPS

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

LEGEND

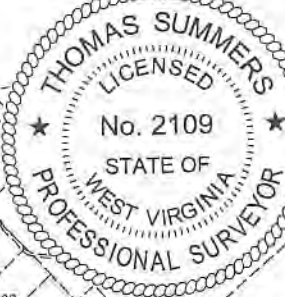
- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Proposed Well Path
- As Drilled Well Path

Thomas Summers
THOMAS SUMMERS P.S. 2109

DATE 02/11/25

OPERATOR'S WELL# OTTERSIDE UNIT #1H

NOTE
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER CATTLE OR POULTRY OR LIVESTOCK 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 RELATIONS OF 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 TYPE: OIL	GAS ☒	LIQUID INJECTION	WASTE DISPOSAL	47	085	10519
(IF "GAS") PRODUCTION	☒	STORAGE	DEEP	SHALLOW ☒	STATE	COUNTY
LOCATION: ELEVATION	AS BUILT - 1,025'	WATERSHED	NORTH FORK HUGHES RIVER	DISTRICT	CLAY	COUNTY
QUADRANGLE	ELLENBORO 7.5'	DISTRICT	CLAY	COUNTY	RITCHIE	
SURFACE OWNER	NELSON MARK HAYHURST	ACREAGE	9.65 ACRES +/-	LEASE ACREAGE	9.65 ACRES±	
OIL & GAS ROYALTY OWNER	EVELYN HAYHURST	ESTIMATED DEPTH	6,290' TVD 25,858' MD	DESIGNATED AGENT	KEVIN ELLIS	
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	6,290' TVD 25,858' MD	DESIGNATED AGENT	KEVIN ELLIS	
WELL OPERATOR	ANTERO RESOURCES CORP.	ADDRESS	535 WHITE OAKS BLVD			
ADDRESS	1615 WYNKOOP ST.	ADDRESS	535 WHITE OAKS BLVD			
FORM WW-6	DENVER, CO 80202		BRIDGEPORT, WV 26330			

COUNTY NAME
PERMIT



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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	09/12/2024
Job End Date:	10/14/2024
State:	West Virginia
County:	Ritchie
API Number:	47-085-10519-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	OTTERSLIDE UNIT 1H
Latitude:	39.284909
Longitude:	-81.007792
Datum:	WGS84
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6302
Total Base Water Volume (gal)*:	29781832.8
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	86.78524	None
			Crystalline silica, quartz	14808-60-7	100.00000	12.93964	None
			Water	7732-18-5	100.00000	0.22933	None
			Hydrochloric acid	7647-01-0	30.00000	0.05919	None
			Complex amine compound	Proprietary	60.00000	0.01808	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	0.01658	None
			Guar gum	9000-30-0	100.00000	0.01150	None
			Hydrotreated distillate	Proprietary	30.00000	0.00904	None
			Hydrotreated light petroleum distillates	64742-47-8	30.00000	0.00829	None
			Ammonium chloride	12125-02-9	5.00000	0.00289	None
			Glutaraldehyde	111-30-8	30.00000	0.00242	None
			Ethoxylated alcohol	Proprietary	5.00000	0.00151	None
			Fatty nitrogen derived amides	Proprietary	5.00000	0.00151	None
			Amides, tall-oil fatty, N,N-bis(hydroxyethyl)	68155-20-4	5.00000	0.00138	None
			Ethoxylated branched C13 alcohol	78330-21-9	5.00000	0.00138	None
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	1.00000	0.00058	None
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6	1.00000	0.00058	None
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl, chlorides	68424-85-1	5.00000	0.00040	None
			Methanol	67-56-1	100.00000	0.00029	None
			Ammonium persulfate	7727-54-0	100.00000	0.00020	None
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00009	None
			Modified thiourea polymer	Proprietary	30.00000	0.00009	None
			Citric acid	77-92-9	1.00000	0.00008	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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Antero Resources
1615 Wynkoop Street
Denver, CO 80202
Office 303.357.7310
Fax 303.357.7315

March 11, 2025

West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street
Charleston, WV 25304

To Whom It May Concern:

Please find enclosed the Well Operator's Report of Well Work, Form WR-35 (including As-Drilled Survey Plat, Directional Survey and FracFocus report), Discharge Monitoring Report Form WR-34 and corresponding logs for the following wells:

- Boxcar Unit 1H – Olympus Pad
- Doll Unit 1H – Olympus Pad
- Lambert Unit 1H – Olympus Pad
- Otterslide Unit 1H – Olympus Pad
- Vanderhoff Unit 1H – Olympus Pad

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If you have any questions please feel free to contact me at (303) 357-6959.

WV Department of
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Sincerely,

A handwritten signature in black ink, appearing to read "S Gaspar", written over a white background.

Stefan Gaspar
Permitting Agent
Antero Resources Corporation

Enclosures

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