

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

API 47 - 103 - 03601 County Wetzel District Green
Quad Porter Falls 7.5' Pad Name Big Run Field/Pool Name -----
Farm name Antero Resources Corporation Well Number Sprouse 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 4378383m Easting 515564m
Landing Point of Curve Northing 4377964.91m Easting 514711.17m
Bottom Hole Northing 4383502m Easting 512808m

Elevation (ft) 1250' GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
Air - Foam & 4% KCL
Mud - Polymer

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Date permit issued 9/5/2023 Date drilling commenced 9/8/2023 Date drilling ceased 11/5/2023
Date completion activities began 2/23/2024 Date completion activities ceased 5/12/2024
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 31' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 2311' 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
08/16/2024

API 47- 103 - 03601 Farm name Antero Resources Corporation Well number Sprouse 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"	130'	New	91.59#, J-55	N/A	Y
Surface	17-1/2"	13-3/8"	385'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	3914'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" /8-1/2"	5-1/2"	27543'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7855'		4.7#, J-55		
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	215 sx	15.6	1.18	254	0'	8 Hrs.
Surface	Class A	330 sx	15.8	1.17	386	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1360 sx	15.8	1.16	1578	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	4396 sx (Tail)	13.5 (Lead), 15.2(Tail)	1.35 (Tail)	5935	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 27543' MD, 6731' TVD (BHL), 6816' TVD (Deepest Point Drilled) Loggers TD (ft) 27543' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 6108'

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 _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

Department of Environmental Protection

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

08/16/2024

API 47-103-03601 Farm Name Antero Resources Corporation Well Number Sprouse Unit 1H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2/23/2024	27404.00	27360.00	36	Marcellus
2	2/24/2024	27321.61	27156.67	36	Marcellus
3	2/24/2024	27121.28	26956.33	36	Marcellus
4	2/24/2024	26920.94	26756.00	36	Marcellus
5	2/25/2024	26720.61	26555.67	36	Marcellus
6	2/25/2024	26520.28	26355.33	36	Marcellus
7	2/25/2024	26319.94	26155.00	36	Marcellus
8	2/25/2024	26119.61	25954.67	36	Marcellus
9	2/26/2024	25919.28	25754.33	36	Marcellus
10	2/26/2024	25718.94	25554.00	36	Marcellus
11	2/26/2024	25518.61	25353.67	36	Marcellus
12	2/26/2024	25318.28	25153.33	36	Marcellus
13	2/27/2024	25117.94	24953.00	36	Marcellus
14	2/27/2024	24917.61	24752.67	36	Marcellus
15	2/27/2024	24717.28	24552.33	36	Marcellus
16	2/27/2024	24516.94	24352.00	36	Marcellus
17	2/27/2024	24316.61	24151.67	36	Marcellus
18	2/28/2024	24116.28	23951.33	36	Marcellus
19	2/28/2024	23915.94	23751.00	36	Marcellus
20	2/28/2024	23715.61	23550.67	36	Marcellus
21	2/28/2024	23515.28	23350.33	36	Marcellus
22	2/28/2024	23314.94	23150.00	36	Marcellus
23	2/29/2024	23114.61	22949.67	36	Marcellus
24	2/29/2024	22914.28	22749.33	36	Marcellus
25	2/29/2024	22713.94	22549.00	36	Marcellus
26	3/1/2024	22513.61	22348.67	36	Marcellus
27	3/1/2024	22313.28	22148.33	36	Marcellus
28	3/1/2024	22112.94	21948.00	36	Marcellus
29	3/1/2024	21912.61	21747.67	36	Marcellus
30	3/1/2024	21712.28	21547.33	36	Marcellus
31	3/1/2024	21511.94	21347.00	36	Marcellus
32	3/2/2024	21311.61	21146.67	36	Marcellus
33	3/2/2024	21111.28	20946.33	36	Marcellus
34	3/2/2024	20910.94	20746.00	36	Marcellus
35	3/2/2024	20710.61	20545.67	36	Marcellus
36	3/3/2024	20510.28	20345.33	36	Marcellus
37	3/3/2024	20309.94	20145.00	36	Marcellus
38	3/3/2024	20109.61	19944.67	36	Marcellus
39	3/3/2024	19909.28	19744.33	36	Marcellus
40	3/3/2024	19708.94	19544.00	36	Marcellus
41	3/4/2024	19508.61	19343.67	36	Marcellus
42	3/4/2024	19308.28	19143.33	36	Marcellus
43	3/4/2024	19107.94	18943.00	36	Marcellus
44	3/4/2024	18907.61	18742.67	36	Marcellus
45	3/5/2024	18707.28	18542.33	36	Marcellus
46	3/5/2024	18506.94	18342.00	36	Marcellus
47	3/5/2024	18306.61	18141.67	36	Marcellus
48	3/5/2024	18106.28	17941.33	36	Marcellus
49	3/6/2024	17905.94	17741.00	36	Marcellus
50	3/6/2024	17705.61	17540.67	36	Marcellus
51	3/6/2024	17505.28	17340.33	36	Marcellus
52	3/6/2024	17304.94	17140.00	36	Marcellus
53	3/7/2024	17104.61	16939.67	36	Marcellus
54	3/7/2024	16904.28	16739.33	36	Marcellus
55	3/7/2024	16703.94	16539.00	36	Marcellus
56	3/8/2024	16503.61	16338.67	36	Marcellus
57	3/8/2024	16303.28	16138.33	36	Marcellus
58	3/8/2024	16102.94	15938.00	36	Marcellus
59	3/8/2024	15902.61	15737.67	36	Marcellus
60	3/8/2024	15702.28	15537.33	36	Marcellus
61	3/9/2024	15501.94	15337.00	36	Marcellus
62	3/9/2024	15301.61	15136.67	36	Marcellus
63	3/9/2024	15101.28	14936.33	36	Marcellus
64	3/9/2024	14900.94	14736.00	36	Marcellus
65	3/9/2024	14700.61	14535.67	36	Marcellus
66	3/9/2024	14500.28	14335.33	36	Marcellus
67	3/9/2024	14299.94	14135.00	36	Marcellus
68	3/10/2024	14099.61	13934.67	36	Marcellus
69	3/10/2024	13899.28	13734.33	36	Marcellus
70	3/10/2024	13698.94	13534.00	36	Marcellus
71	3/10/2024	13498.61	13333.67	36	Marcellus
72	3/10/2024	13298.28	13133.33	36	Marcellus
73	3/10/2024	13097.94	12933.00	36	Marcellus
74	3/11/2024	12897.61	12732.67	36	Marcellus
75	3/11/2024	12697.28	12532.33	36	Marcellus
76	3/11/2024	12496.94	12332.00	36	Marcellus
77	3/11/2024	12296.61	12131.67	36	Marcellus
78	3/11/2024	12096.28	11931.33	36	Marcellus
79	3/11/2024	11895.94	11731.00	36	Marcellus
80	3/12/2024	11695.61	11530.67	36	Marcellus
81	3/12/2024	11495.28	11330.33	36	Marcellus
82	3/12/2024	11294.94	11130.00	36	Marcellus
83	3/12/2024	11094.61	10929.67	36	Marcellus
84	3/12/2024	10894.28	10729.33	36	Marcellus
85	3/13/2024	10693.94	10529.00	36	Marcellus
86	3/13/2024	10493.61	10328.67	36	Marcellus
87	3/13/2024	10293.28	10128.33	36	Marcellus
88	3/13/2024	10092.94	9928.00	36	Marcellus
89	3/13/2024	9892.61	9727.67	36	Marcellus
90	3/13/2024	9692.28	9527.33	36	Marcellus
91	3/13/2024	9491.94	9327.00	36	Marcellus
92	3/13/2024	9291.61	9126.67	36	Marcellus
93	3/14/2024	9091.28	8926.33	36	Marcellus
94	3/14/2024	8890.94	8726.00	36	Marcellus
95	3/14/2024	8690.61	8525.67	36	Marcellus
96	3/14/2024	8490.28	8325.33	36	Marcellus
97	3/14/2024	8289.94	8125.00	36	Marcellus

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EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	2/23/2024	72.46854	10035.28	8142.1	4118.415	167460	6361.28571	N/A
2	2/24/2024	83.31769	10116.72	5257.65	4201.554	415200	8345.21429	N/A
3	2/24/2024	84.8031	10333.61	5204.22	4384.496	412420	7544.69048	N/A
4	2/24/2024	80.91667	10444.3	5915.31	4237.805	411480	7415.57143	N/A
5	2/25/2024	80.2541	10410.19	7027.11	4028.539	413880	7311.14286	N/A
6	2/25/2024	82.87416	10481.27	7583.79	4135.738	414240	7253.40476	N/A
7	2/25/2024	83.08081	10456.68	7211.04	4061.63	414520	7302.85714	N/A
8	2/25/2024	82.71956	10451.01	7398.14	4339.62	419740	7267.28571	N/A
9	2/26/2024	82.01945	10522.93	7662.52	4100.565	422180	7290.30952	N/A
10	2/26/2024	80.87052	10383.57	7270.82	4238.234	416060	7150.92857	N/A
11	2/26/2024	83.09234	10567.76	7103.29	4050.718	418340	7235.16667	N/A
12	2/26/2024	83.75798	10548.05	7067.44	4192.404	417180	7175.09524	N/A
13	2/27/2024	83.61674	10534.32	7469.14	4312.261	414360	7135.07143	N/A
14	2/27/2024	84.81034	10328.61	6988.05	4262.391	416180	7143.09524	N/A
15	2/27/2024	90.36652	10542.02	7091.16	4199.11	416860	7218.83333	N/A
16	2/27/2024	88.13858	10599.98	5762.89	4078.946	412900	7193.45238	N/A
17	2/27/2024	89.99219	10387.34	5510.83	4410	422150	7128.88095	N/A
18	2/28/2024	90.46154	10560.4	7052.08	4388	416320	7100.54762	N/A
19	2/28/2024	88.52465	10470.13	7129.23	4260.508	421380	7167.09524	N/A
20	2/28/2024	89.45467	10495.21	7120.19	4415.7	420720	7204.33333	N/A
21	2/28/2024	93.24595	10538.21	4204.61	4491	414160	6987.80952	N/A
22	2/28/2024	91.71866	10601.06	4820.11	4221	414900	7042.11905	N/A
23	2/29/2024	90.77556	10262.3	3460.09	4290.544	415680	7313.95238	N/A
24	2/29/2024	88.29213	10358.19	6656.72	4049.237	412000	7126.7381	N/A
25	2/29/2024	91.65814	10488.77	6707.77	4128.817	414660	7043.45238	N/A
26	3/1/2024	90.07567	10247.45	4486.46	4054.241	412280	6956.38095	N/A
27	3/1/2024	91.60415	10480.81	4712.2	4035.127	414040	7037.28571	N/A
28	3/1/2024	90.92707	10382.11	5472.18	4208.286	418580	7209.09524	N/A
29	3/1/2024	93.14421	10395.95	6172.86	4235.876	420000	7135.85714	N/A
30	3/1/2024	91.45628	10527.35	6271.86	3847.139	428460	7250.90476	N/A
31	3/1/2024	91.40483	10499.37	5276.17	4149.861	418500	7026.90476	N/A
32	3/2/2024	93.89062	10506.5	5413.58	4141.588	426780	7140.97619	N/A
33	3/2/2024	94.58431	10514.62	5583.99	4291.97	415700	7011.45238	N/A
34	3/2/2024	95.50937	10524.24	6377.11	3940.642	410080	6927.80952	N/A
35	3/2/2024	94.25483	10223.89	3797.46	4124.707	425400	6875.61905	N/A
36	3/3/2024	92.90617	10328.29	6151.37	4024.229	416760	7015.04762	N/A
37	3/3/2024	93.66769	10371.69	6285.35	3978.874	423580	6852.09524	N/A
38	3/3/2024	96.19269	10417.01	6966.05	4070.558	413200	7093.07143	N/A
39	3/3/2024	95.77587	10510.33	6727.25	3999.076	416200	6993.61905	N/A
40	3/3/2024	92.52613	10199.9	5615.21	4048	414640	7171.42857	N/A
41	3/4/2024	95.40781	10194.53	5821.59	4049.186	421480	7300.83333	N/A
42	3/4/2024	96.59115	10324.86	6923.88	4069.832	414600	7246.95238	N/A
43	3/4/2024	92.12947	9976.127	6637.87	3856.608	420460	7135.16667	N/A
44	3/4/2024	94.99228	10161.91	5973.58	4193.893	420120	7141.90476	N/A
45	3/5/2024	94.96782	9950.639	5655.87	4082	421700	7121.42857	N/A
46	3/5/2024	94.14782	9976.273	5372.16	4717	416140	7153.61905	N/A
47	3/5/2024	85.20382	9792.083	6384.22	4179	414380	7099.28571	N/A
48	3/5/2024	94.03897	9634.322	5349.06	4074.07	416540	7203.33333	N/A
49	3/6/2024	95.69769	9717.921	5813.11	4175.24	401490	7001.02381	N/A
50	3/6/2024	96.94968	9849.448	6101.91	3742.868	397430	6858.61905	N/A
51	3/6/2024	98.26316	9935.479	6405.04	3966.537	400330	6989.90476	N/A
52	3/6/2024	95.13603	9383.728	6477.27	4226	393710	6724.38095	N/A
53	3/7/2024	95.45414	9544.423	6093.2	4073	409960	6984.21429	N/A
54	3/7/2024	96.39014	9857.921	6324.11	4137	413300	7097.5	N/A
55	3/7/2024	96.48734	9496.203	6016.45	4183.045	411900	7059.19048	N/A
56	3/8/2024	94.50375	9065.632	6307.64	4420	411420	6929.35714	N/A
57	3/8/2024	98.05125	9564.643	6667.31	4183.463	414360	7086.57143	N/A
58	3/8/2024	96.2976	9081.017	4800.75	4080.948	416980	6987.54762	N/A
59	3/8/2024	96.91444	8994.609	5746.14	3966.481	402270	6753.33333	N/A
60	3/8/2024	95.6635	9088.186	6623.47	4085.238	416640	7051.57143	N/A
61	3/9/2024	96.70715	9077.514	5868.21	4129.814	416200	6970	N/A
62	3/9/2024	97.13588	9076.365	5057.89	3880.253	415940	7018.97619	N/A
63	3/9/2024	96.7849	9082.657	6850.98	3977.641	417620	6977.64286	N/A
64	3/9/2024	97.42707	9082.034	6837.92	3905.986	413480	6915.16667	N/A
65	3/9/2024	97.80195	9080.685	5448.93	4120.85	413900	7011.85714	N/A
66	3/9/2024	97.15942	9094.472	6236.22	3863.215	413220	6833.04762	N/A
67	3/9/2024	96.22381	9090.024	6686.14	4228.613	415100	6922.7381	N/A
68	3/10/2024	96.57722	9092.164	5300.19	3841.316	407960	7099.19048	N/A
69	3/10/2024	96.96074	9086.295	6431.99	3690.019	422820	7216.54762	N/A
70	3/10/2024	97.67072	8962.8	6421.1	3703.658	419980	7175.95238	N/A
71	3/10/2024	97.3359	8940.938	5793.55	3847.713	412340	6993.64286	N/A
72	3/10/2024	96.70877	8911.72	6897.48	3872.712	413580	6858.57143	N/A
73	3/10/2024	96.69644	8766.122	5812.57	3987.495	414420	6905.45238	N/A
74	3/11/2024	96.95801	8921.553	6500.36	3861.185	411960	7015.45238	N/A
75	3/11/2024	96.6999	8874.36	6474.96	4013.691	420660	7051.97619	N/A
76	3/11/2024	97.59088	8505.704	6421.64	4040.424	419100	6886.42857	N/A
77	3/11/2024	97.6537	8616.312	6342.82	4031.982	414780	6973.85714	N/A
78	3/11/2024	96.6006	8764.418	6536.77	3873.728	414620	6702.11905	N/A
79	3/11/2024	97.35344	8621.16	5467.96	3624	412600	6811.54762	N/A
80	3/12/2024	98.2747	9004.042	6952.07	3799	411700	6905.02381	N/A
81	3/12/2024	97.9528	8469.201	6731.8	3743.605	417620	6957.04762	N/A
82	3/12/2024	96.91401	8379.752	5535.44	3791.768	413500	6914.71429	N/A
83	3/12/2024	97.30314	8882.499	6618.23	3542.487	421340	6988.35714	N/A
84	3/12/2024	97.46658	8078.825	6074.07	3705.913	413980	7007.02381	N/A
85	3/13/2024	97.50114	8110.658	6279.25	3628.68	419740	7062.38095	N/A
86	3/13/2024	97.65687	7991.01	6321.51	3591.956	414120	6942.66667	N/A
87	3/13/2024	98.12246	8116.976	6317.43	3559.145	412460	6926.71429	N/A
88	3/13/2024	97.63918	7909.143	6076.39	3519.682	416740	6961.02381	N/A
89	3/13/2024	98.01477	8155.988	6013.12	3498.189	401550	6745.19048	N/A
90	3/13/2024	97.36498	8756.485	8330.35	3481.362	419420	6888.04762	N/A
91	3/13/2024	97.87598	7884.786	6339.54	3576.316	415720	6988.64286	N/A
92	3/13/2024	97.09018	7776.407	6455.01	3580.318	411520	6910.85714	N/A
93	3/14/2024	97.87779	8065.551	6631.31	3505.629	415800	6960.45238	N/A
94	3/14/2024	97.3346	8128.774	6558.51	3752.551	414940	7031.40476	N/A
95	3/14/2024	97.53827	7936.337	5807.43	4018.474	418440	6959.09524	N/A
96	3/14/2024	97.98829	8531.044	6203.25	3870.876	420520	6967.78571	N/A
97	3/14/2024	97.17209	7662.379	6131	3620.546	418140	6937.54762	N/A
AVERAGE		93	9,568	6,191	4,015	40,031,910	684,476	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
Sandstone	70	470	70	470
Sandy Siltstone	470	720	470	720
Siltstone, occ Sandstone	720	820	720	820
Siltstone, rr Limestone	820	870	820	870
Siltstone, occ Sandstone	870	1,170	870	1,170
Shaly Siltstone, occ LS	1,170	1,270	1,170	1,270
Siltstone, rr SH, rr Coal	1,270	1,470	1,270	1,470
Shaly Siltstone	1,470	1,620	1,470	1,620
Shaly Sandstone	1,620	1,670	1,620	1,670
Silty, Shaly, Sandstone	1,670	1,920	1,670	1,920
Silty Sandstone, Tr Coal	1,920	1,970	1,920	1,970
Silty Sandstone	1,970	2,070	1,970	2,070
Silty Sandstone, calc cmt	2,070	2,113	2,070	2,322
Big Lime	2,143	2,850	2,352	3,222
Fifty Foot Sandstone	2,850	2,997	3,222	3,396
Gordon	2,997	3,234	3,396	3,677
Fifth Sandstone	3,234	3,271	3,677	3,721
Bayard	3,271	4,153	3,721	4,813
Speechley	4,153	4,381	4,813	5,086
Balltown	4,381	4,916	5,086	5,729
Bradford	4,916	5,169	5,729	6,046
Benson	5,169	5,531	6,046	6,472
Alexander	5,531	6,612	6,472	7,737
Sycamore	6,475	6,582	7,564	7,707
Middlesex	6,582	6,677	7,707	7,868
Burkett	6,677	6,694	7,868	7,903
Tully	6,694	6,757	7,903	8,073
Marcellus	6757	NA	8073	NA

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Hydraulic Fracturing Fluid Product Component Information Disclosure



Job Start Date:	02/23/2024
Job End Date:	03/14/2024
State:	West Virginia
County:	Wetzel
API Number:	47-103-03601-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	SPROUSE UNIT 1H
Latitude:	39.5549
Longitude:	-80.819
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6815
Total Base Water Volume (gal)*:	30656325
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					
HAI-501	Halliburton	Acid Corrosion Inhibitor					
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
MC B-8614A	MultiChem	Biocide					
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					RECEIVED Office of Oil and Gas JUL 29 2024 WV Department of Environmental Protection
Produced Water (Density 10.0)	Operator	Base Fluid					
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
WG-36 GELLING AGENT	Halliburton	Gelling Agent					

Items above are Trade Names. Items below are the individual ingredients.

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			Water	7732-18-5	100.00000	88.29954	None
			Crystalline silica, quartz	14808-60-7	100.00000	11.53042	None
			Water	7732-18-5	100.00000	0.14537	None
			Hydrochloric acid	7647-01-0	30.00000	0.03238	None
			Complex amine compound	Proprietary	60.00000	0.03064	None
			Hydrotreated distillate	Proprietary	30.00000	0.01532	None
			Guar gum	9000-30-0	100.00000	0.00397	None
			Ammonium chloride	12125-02-9	5.00000	0.00255	None
			Ethoxylated alcohol	Proprietary	5.00000	0.00255	None
			Fatty nitrogen derived amides	Proprietary	5.00000	0.00255	None
			Glutaraldehyde	111-30-8	30.00000	0.00204	None
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	1.00000	0.00051	None
			Sorbitan monooleate polyoxyethylene derivative	9005-65-6	1.00000	0.00051	None
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	5.00000	0.00034	None
			Methanol	67-56-1	100.00000	0.00020	None
			Ammonium persulfate	7727-54-0	100.00000	0.00009	None
			Ethanol	64-17-5	1.00000	0.00007	None
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00006	None
			Modified thiourea polymer	Proprietary	30.00000	0.00006	None
			Oxylated phenolic resin	Proprietary	30.00000	0.00003	None
			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.

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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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