

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

API 47-095-02702 County Tyler District Ellsworth
Quad Porter Falls Pad Name Pyles Pad Field/Pool Name -----
Farm name Richard D Pyles Well Number Vulcan 2H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop St 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 4372724m Easting 514002m
Landing Point of Curve Northing 4372416.60m Easting 514144.69m
Bottom Hole Northing 4368455m Easting 515530m

Elevation (ft) 1081' 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 06/05/2020 Date drilling commenced 8/8/2020 Date drilling ceased 10/20/2020
Date completion activities began 12/8/2020 Date completion activities ceased 2/13/2021
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 61 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2200 Void(s) encountered (Y/N) depths N
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by:

APPROVED

2/10/23
03/17/2023

API 47-095 - 02702 Farm name Richard D Pyles Well number Vulcan 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	24"	20"	80'	New	94# H-40	N/A	Y
Surface	17-1/2"	13-3/8"	346'	New	54.5# J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2575'	New	36# J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	21485'	New	23# P-110	N/A	Y
Tubing		2-3/8"	6782'		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	285 sx	15.6	1.18	60	0	8 Hrs
Surface	Class A	388 sx	15.6	1.20	76	0	8 Hrs
Coal							
Intermediate 1	Class A	883 sx	15.6	1.19	187	0	8 Hrs
Intermediate 2							
Intermediate 3							
Production	Class H	792 sx (Lead) 3348 sx (Tail)	13.5 (Lead), 15.2(Tail)	1.4 (Lead), 1.26 (Tail)	751	-500' into Intermediate Casing	8 Hrs
Tubing							

Drillers TD (ft) 21530' MD, 6691' TVD (BHL), 6708' (Deepest Point Drilled) Loggers TD (ft) 21530' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5732'

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 ever 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 on 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 _____

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[Handwritten Signature]

API 47-095 - 02702 Farm name Richard D Pyles Well number Vulcan 2H

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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Please insert additional pages as applicable.

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API 47- 095 - 02702 Farm name Richard D Pyles Well number Vulcan 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6592' (Top)</u> TVD	<u>6860' (Top)</u> MD
_____	_____	_____
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2800 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 15265 mcfpd Oil 377 bpd NGL --- bpd Water 641 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)
	<u>0</u>		<u>0</u>		
*PLEASE SEE ATTACHED EXHIBIT 3					
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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 Schlumberger Oilfield Services
Address 300 Schlumberger Dr City Sugarland State TX Zip 77478

Stimulating Company Halliburton
Address 3000 W. Sam Houston Pkwy City Houston State TX Zip 76114

Please insert additional pages as applicable.

Completed by Carly Marvel Telephone 303-357-7373
Signature Carly Marvel Title Permitting Agent Date 2/2/2023

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

03/17/2023

SM 2/2/23

Exhibit 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	12/08/2020	21412	21368	60	Marcellus
2	12/08/2020	21329.33519	21164.0111	60	Marcellus
3	12/08/2020	21128.5463	20963.2222	60	Marcellus
4	12/09/2020	20927.75741	20762.4333	60	Marcellus
5	12/09/2020	20726.96852	20561.6444	60	Marcellus
6	12/09/2020	20526.17963	20360.8556	60	Marcellus
7	12/09/2020	20325.39074	20160.0667	60	Marcellus
8	12/10/2020	20124.60185	19959.2778	60	Marcellus
9	12/10/2020	19923.81296	19758.4889	60	Marcellus
10	12/10/2020	19723.02407	19557.7	60	Marcellus
11	12/10/2020	19522.23519	19356.9111	60	Marcellus
12	12/11/2020	19321.4463	19156.1222	60	Marcellus
13	12/11/2020	19120.65741	18955.3333	60	Marcellus
14	12/11/2020	18919.86852	18754.5444	60	Marcellus
15	12/11/2020	18719.07963	18553.7556	60	Marcellus
16	12/12/2020	18518.29074	18352.9667	60	Marcellus
17	12/12/2020	18317.50185	18152.1778	60	Marcellus
18	12/12/2020	18116.71296	17951.3889	60	Marcellus
19	12/12/2020	17915.92407	17750.6	60	Marcellus
20	12/13/2020	17715.13519	17549.8111	60	Marcellus
21	12/13/2020	17514.3463	17349.0222	60	Marcellus
22	12/13/2020	17313.55741	17148.2333	60	Marcellus
23	12/13/2020	17112.76852	16947.4444	60	Marcellus
24	12/14/2020	16911.97963	16746.6556	60	Marcellus
25	12/14/2020	16711.19074	16545.8667	60	Marcellus
26	12/14/2020	16510.40185	16345.0778	60	Marcellus
27	12/14/2020	16309.61296	16144.2889	60	Marcellus
28	12/15/2020	16108.82407	15943.5	60	Marcellus
29	12/15/2020	15908.03519	15742.7111	60	Marcellus
30	12/15/2020	15707.2463	15541.9222	60	Marcellus
31	12/15/2020	15506.45741	15341.1333	60	Marcellus
32	12/16/2020	15305.66852	15140.3444	60	Marcellus
33	12/16/2020	15104.87963	14939.5556	60	Marcellus
34	12/16/2020	14904.09074	14738.7667	60	Marcellus
35	12/16/2020	14703.30185	14537.9778	60	Marcellus
36	12/17/2020	14502.51296	14337.1889	60	Marcellus
37	12/17/2020	14301.72407	14136.4	60	Marcellus
38	12/18/2020	14100.93519	13935.6111	60	Marcellus
39	12/18/2020	13900.1463	13734.8222	60	Marcellus
40	12/19/2020	13699.35741	13534.0333	60	Marcellus
41	12/19/2020	13498.56852	13333.2444	60	Marcellus
42	12/20/2020	13297.77963	13132.4556	60	Marcellus
43	12/20/2020	13096.99074	12931.6667	60	Marcellus
44	12/20/2020	12896.20185	12730.8778	60	Marcellus
45	12/20/2020	12695.41296	12530.0889	60	Marcellus
46	12/21/2020	12494.62407	12329.3	60	Marcellus
47	12/21/2020	12293.83519	12128.5111	60	Marcellus
48	12/22/2020	12093.0463	11927.7222	60	Marcellus
49	12/22/2020	11892.25741	11726.9333	60	Marcellus
50	12/23/2020	11691.46852	11526.1444	60	Marcellus
51	12/23/2020	11490.67963	11325.3556	60	Marcellus
52	12/23/2020	11289.89074	11124.5667	60	Marcellus
53	12/23/2020	11089.10185	10923.7778	60	Marcellus
54	12/24/2020	10888.31296	10722.9889	60	Marcellus
55	12/27/2020	10687.52407	10522.2	60	Marcellus
56	12/27/2020	10486.73519	10321.4111	60	Marcellus
57	12/28/2020	10285.9463	10120.6222	60	Marcellus
58	12/29/2020	10085.15741	9919.8333	60	Marcellus
59	12/29/2020	9884.368519	9719.0444	60	Marcellus
60	12/29/2020	9683.57963	9518.25556	60	Marcellus
61	12/29/2020	9482.790741	9317.46667	60	Marcellus
62	12/30/2020	9282.001852	9116.67778	60	Marcellus
63	12/30/2020	9081.212963	8915.88889	60	Marcellus
64	12/31/2020	8880.424074	8715.1	60	Marcellus
65	12/31/2020	8679.635185	8514.31111	60	Marcellus
66	12/31/2020	8478.846296	8313.52222	60	Marcellus
67	12/31/2020	8278.057407	8112.73333	60	Marcellus
68	01/01/2021	8077.268519	7911.94444	60	Marcellus
69	01/01/2021	7876.47963	7711.15556	60	Marcellus
70	01/01/2021	7675.690741	7510.36667	60	Marcellus
71	01/01/2021	7474.901852	7309.57778	60	Marcellus
72	01/01/2021	7274.112963	7108.78889	60	Marcellus
73	01/01/2021	7073.324074	6908	60	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	12/08/2020	61.89	9237.06	8025.31	3245.67	188480	235145	N/A
2	12/08/2020	78.91	9938	8366	4151	400910	313674	N/A
3	12/08/2020	90.43	10199	5554	4095	387360	315174	N/A
4	12/09/2020	87.84	9725	5885	4016	392870	303320	N/A
5	12/09/2020	84.16	9485	5332	3624	390940	302985	N/A
6	12/09/2020	80.62	9421	5628	3491	405520	377973	N/A
7	12/09/2020	86.52	9759	5991	3291	407610	312803	N/A
8	12/10/2020	87.68	9466	5483	3393	404690	309851	N/A
9	12/10/2020	85.33	9292	5589	3863	408480	311267	N/A
10	12/10/2020	87.25	9680	5732	3832	406490	310037	N/A
11	12/10/2020	92.99	10158	5364	4281	409930	312416	N/A
12	12/11/2020	88.44	10057	5583	3668	402860	309079	N/A
13	12/11/2020	92.3	9669	5391	4315	409630	304133	N/A
14	12/11/2020	92.28	9632	5747	4203	405740	300848	N/A
15	12/11/2020	85.62	9191	5263	4466	407360	306847	N/A
16	12/12/2020	85.74	9280	5580	5083	406570	373251	N/A
17	12/12/2020	88.93	9601	5793	4342	408500	301629	N/A
18	12/12/2020	94.78	10102	5486	3515	407330	299564	N/A
19	12/12/2020	89.06	9542	5306	3644	406950	303864	N/A
20	12/13/2020	89.9	9842	5308	4583	394886	302063	N/A
21	12/13/2020	93.28	9409	5248	4084	403534	296920	N/A
22	12/13/2020	93.15	9887	5580	4520	407560	298918	N/A
23	12/13/2020	89.16	9055	5145	3846	402120	298701	N/A
24	12/14/2020	86	8704	5321	4276	407940	302987	N/A
25	12/14/2020	90.74	9160	5542	4470	408990	299683	N/A
26	12/14/2020	92.84	9270	5419	4716	403720	297263	N/A
27	12/14/2020	89	8883	5353	4115	403680	299870	N/A
28	12/15/2020	85.43	9253.6	5798	3470.13	408980	300126	N/A
29	12/15/2020	90.15	8998	5646	4246	404780	302811	N/A
30	12/15/2020	89.4	8816	5241	3752	408150	303236	N/A
31	12/15/2020	85.23	8558	5679	3489	408780	298968	N/A
32	12/16/2020	90.4	8865	4568	3740	406280	297545	N/A
33	12/16/2020	88.55	9003	5455	3328	407180	304077	N/A
34	12/16/2020	84.35	9099	5638	3520	405810	306400	N/A
35	12/16/2020	89.61	8734	5331	3729	402180	308749	N/A
36	12/17/2020	92.69	8822	6055	4090	401630	298526	N/A
37	12/17/2020	92.49	8634	6545	4235	405010	293308	N/A
38	12/18/2020	92	8580	5356	3609	403790	291243	N/A
39	12/18/2020	91.14	8739	6081	3678	406360	288182	N/A
40	12/19/2020	90.5	8664	6041	4562	406540	295974	N/A
41	12/19/2020	91.95	9033	5917	4485	405360	298843	N/A
42	12/20/2020	86.9	8792	6257	8280	397380	348446	N/A
43	12/20/2020	91.57	8369	5686	3887	410960	296846	N/A
44	12/20/2020	92.3	8477	5710	4271	409740	333480	N/A
45	12/20/2020	90.83	8449	6158	4001	406120	295990	N/A
46	12/21/2020	79.13	8439	5936	4484	406000	474886	N/A
47	12/21/2020	83.74	8560	5996	4311	402730	295038	N/A
48	12/22/2020	72.11	8368	5806	4921	391640	370717	N/A
49	12/22/2020	87.17	8024	6308	4043	409460	308925	N/A
50	12/23/2020	93.06	8333	6102	4287	404830	298949	N/A
51	12/23/2020	86.65	8310	6084	4067	401320	296600	N/A
52	12/23/2020	91.33	8399	6670	3821	408080	296402	N/A
53	12/23/2020	88.71	8377	6344	3984	406640	298340	N/A
54	12/24/2020	82.46	8271	5738	3935	406950	341897	N/A
55	12/27/2020	91.49	8370	6085	3925	402490	290715	N/A
56	12/27/2020	93.97	8212	5767	3795	395620	288780	N/A
57	12/28/2020	94.75	8367	6194	4250.54	413020	301440	N/A
58	12/29/2020	91.91	8065	5755	3968	409860	299720	N/A
59	12/29/2020	94.97	8093	6145	4273	401650	290159	N/A
60	12/29/2020	89.17	7943	6399	4196	414270	294240	N/A
61	12/29/2020	93.24	7982	6389	4019	403770	294304	N/A
62	12/30/2020	92.89	7809	6010	4088	403350	294477	N/A
63	12/30/2020	93.91	7993	6251	3826	401160	289055	N/A
64	12/31/2020	91.81	7845	6102	4006	408360	292162	N/A
65	12/31/2020	94.16	8124	6315	3827	395180	287379	N/A
66	12/31/2020	95.37	7817	6469	3557	395200	282690	N/A
67	12/31/2020	94.8	7621	6452	3591	401620	285256	N/A
68	01/01/2021	95.63	7665	6452	3830	413840	286692	N/A
69	01/01/2021	95.19	7712	7031	3830	406100	283183	N/A
70	01/01/2021	93.84	7898	6186	3634	402700	301718	N/A
71	01/01/2021	94.44	7784	5963	4118	404480	287044	N/A
72	01/01/2021	94.75	8040	4835	3445	402940	284510	N/A
73	01/01/2021	95.4	7498	6723	3826	395740	277572	N/A
	AVG=	89	8,787	5,886	4,046	29,304,680	22,254,955	TOTAL

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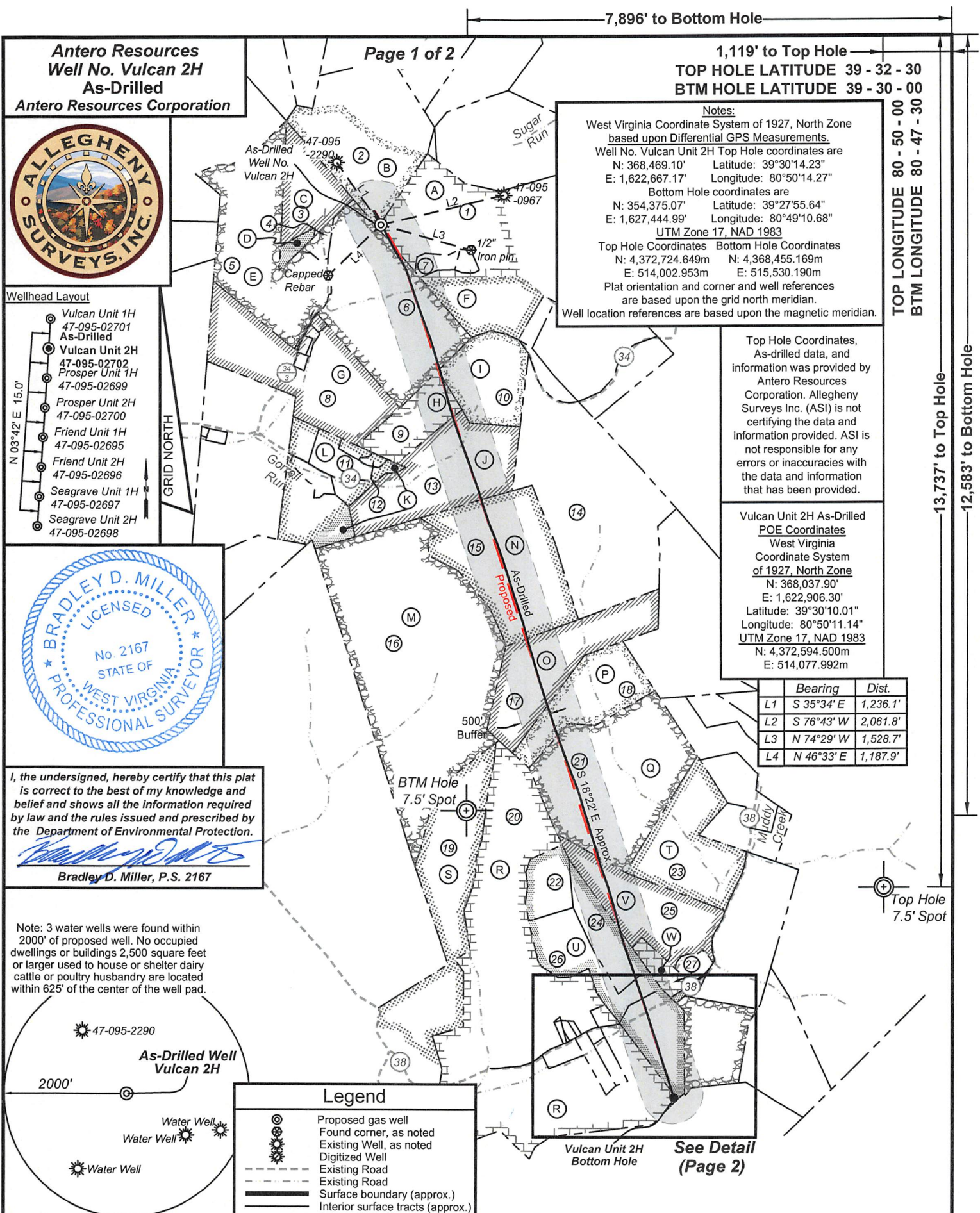
EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Shale	79	124	79	124
Shaley Siltstone	124	474	124	474
Silty Shale	474	574	474	574
Siltstone, Tr Shale	574	724	574	724
Silty Shale	724	824	724	824
Shaley Sandstone	824	1,024	824	1,024
Shale, Tr Siltstone	1,024	1,274	1,024	1,274
Shale, Tr Sandstone	1,274	1,524	1,274	1,524
Silty Shale	1,524	1,624	1,524	1,624
Sandstone, Tr Shale	1,624	1,724	1,624	1,724
Sandy Shale	1,724	1,774	1,724	1,774
Shaley Siltstone	1,774	1,824	1,774	1,824
Shale	1,824	1,956	1,824	1,956
Big Lime	1,982	2,686	1,982	2,686
Fifty Foot Sandstone	2,686	2,790	2,686	2,790
Gordon	2,790	3,095	2,790	3,095
Fifth Sandstone	3,095	3,167	3,095	3,168
Bayard	3,167	4,047	3,168	4,047
Speechley	4,047	4,174	4,047	4,174
Balltown	4,174	4,699	4,174	4,704
Bradford	4,699	4,992	4,704	5,001
Benson	4,992	5,365	5,001	5,381
Alexander	5,365	6,443	5,381	6,515
Sycamore	6,296	6,417	6,336	6,489
Middlesex	6,417	6,512	6,489	6,643
Burkett	6,512	6,538	6,643	6,695
Tully	6,538	6,592	6,695	6,860
Marcellus	6,592	NA	6,860	NA

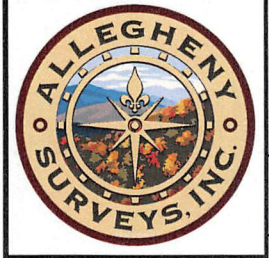
*Please note Antero determines formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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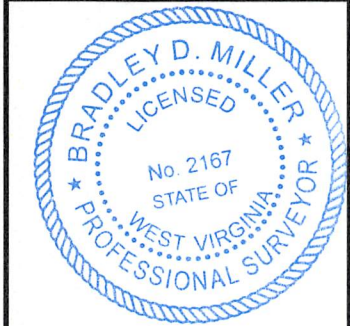


Antero Resources
Well No. Vulcan 2H
As-Drilled
Antero Resources Corporation



Wellhead Layout

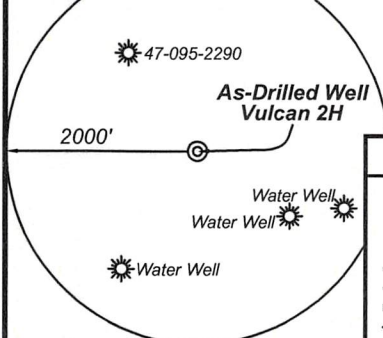
Vulcan Unit 1H	47-095-02701	As-Drilled	
Vulcan Unit 2H	47-095-02702	Prosper Unit 1H	47-095-02699
Prosper Unit 2H	47-095-02700		
Friend Unit 1H	47-095-02695		
Friend Unit 2H	47-095-02696		
Seagrave Unit 1H	47-095-02697		
Seagrave Unit 2H	47-095-02698		



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 prescribed by the Department of Environmental Protection.

Bradley D. Miller
Bradley D. Miller, P.S. 2167

Note: 3 water wells were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



Legend

	Proposed gas well
	Found corner, as noted
	Existing Well, as noted
	Digitized Well
	Existing Road
	Surface boundary (approx.)
	Interior surface tracts (approx.)

Notes:
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
 Well No. Vulcan Unit 2H Top Hole coordinates are
 N: 368,469.10' Latitude: 39°30'14.23"
 E: 1,622,667.17' Longitude: 80°50'14.27"
 Bottom Hole coordinates are
 N: 354,375.07' Latitude: 39°27'55.64"
 E: 1,627,444.99' Longitude: 80°49'10.68"
 UTM Zone 17, NAD 1983
 Top Hole Coordinates Bottom Hole Coordinates
 N: 4,372,724.649m N: 4,368,455.169m
 E: 514,002.953m E: 515,530.190m
 Plat orientation and corner and well references are based upon the grid north meridian.
 Well location references are based upon the magnetic meridian.

Top Hole Coordinates, As-drilled data, and information was provided by Antero Resources Corporation. Allegheny Surveys Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

Vulcan Unit 2H As-Drilled POE Coordinates
 West Virginia Coordinate System of 1927, North Zone
 N: 368,037.90'
 E: 1,622,906.30'
 Latitude: 39°30'10.01"
 Longitude: 80°50'11.14"
 UTM Zone 17, NAD 1983
 N: 4,372,594.500m
 E: 514,077.992m

Bearing	Dist.
L1 S 35°34' E	1,236.1'
L2 S 76°43' W	2,061.8'
L3 N 74°29' W	1,528.7'
L4 N 46°33' E	1,187.9'

FILE NO: 190-54-E-19
 DRAWING NO: Vulcan Unit 2H As-Drilled
 SCALE: 1" = 2000'
 MINIMUM DEGREE OF ACCURACY: Submeter
 PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

STATE OF WEST VIRGINIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: February 24 2021
 OPERATOR'S WELL NO. Vulcan 2H
 API WELL NO
 47 - 095 - 02702
 STATE COUNTY PERMIT

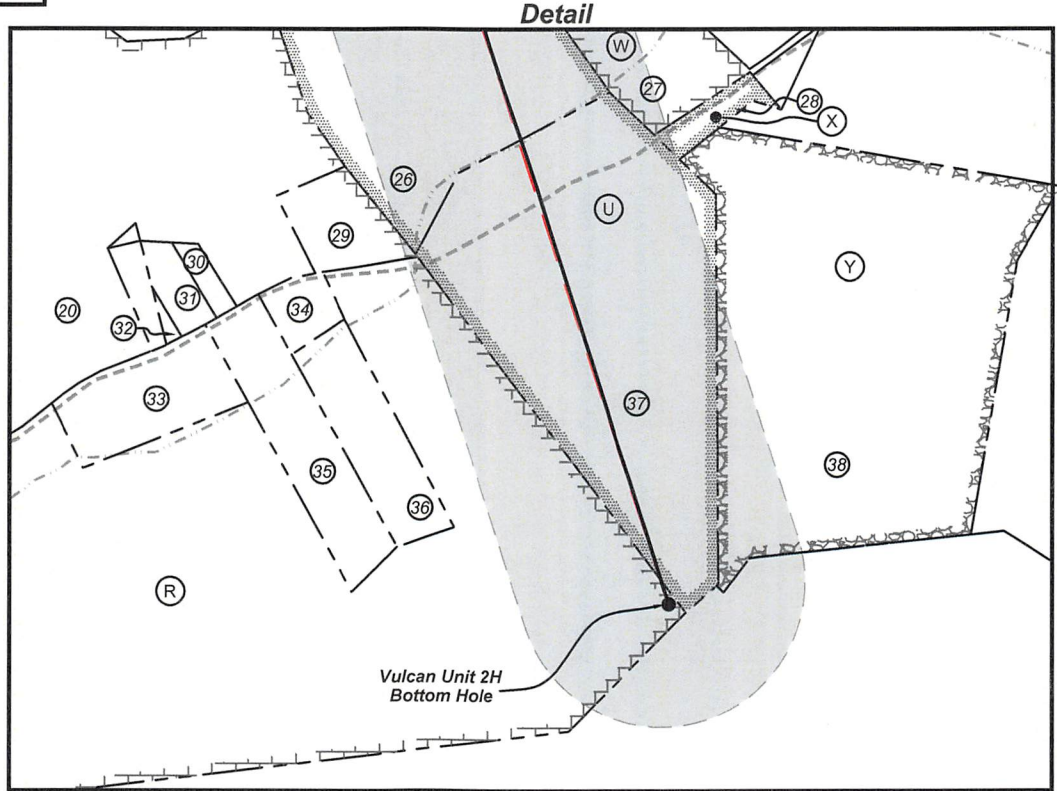
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

LOCATION: ELEVATION: As-Built 1,081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Shirley
 DISTRICT: Ellsworth COUNTY: Tyler
 SURFACE OWNER: Richard D. Pyles LARRY STEVENS; KENDRA K. WYKE; CAROL J. KNAPP; ANTHONY BRUCE PARR, ET UX; RICHARD L. WHITE, II; RIDGETOP CAPITAL II, LP (2); BRC APPALACHIAN MINERALS I, LLC; RONALD P. WEBB; ACREAGE: 168.5
 ROYALTY OWNER: Richard D. & Cathy J. Pyles; Joseph L. Sitko, et ux; Helen E. Boggs; Alfred Lonzo Eddy LEASE NO: ACREAGE: 97.2; 52.938; 271
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 21,530' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
 Denver, CO 80202 Charleston, WV 25313

03/17/2023

AS



ID	TM/Par	Owner	DB/PG	Acres
1	16-42	Richard D. Pyles	379/20	168.50
2	16-22	Joseph L. Jr. & Karen L. Sitko	296/13	81.70
3	16-23	Joseph L. Sitko	314/462	29.70
4	16-44.1	Carl Straight	543/598	3.70
5	15-38	Rodney A. & Candis L. Nash	351/701	85.48
6	16-44	Robert A. Pyles, et al	335/482	87.82
7	16-42.1	Richard D. Pyles	336/815	4.56
8	15-32	William S. & Opal Marie Nash	335/188	78.58
9	22-3	Harold L. & Deborah C. Hollaway	287/669	22.95
10	16-43	Alfred L. Eddy	344/22	37.10
11	22-1	Robert I. Reed & Floyd W. Reed	321/763	37.60
12	22-2	Ronald Hartline & Jamie Barnhart	591/741	1.50
13	22-4	Stephen H. & Barbara J. Dunthorn	216/40	69.00
14	22-6	Antero Resources Inc.	662/782	131.57
15	22-5	Antero Resources Corporation	662/782	84.67
16	22-41	Anthony B. Parr	342/763	222.00
17	22-40	Ronald P. & Sandra L. Webb	282/1	65.00
18	22-39	Ronald P. & Sandra L. Webb	270/587	45.00
19	28-9	David & Cheryl L. Barrick	263/606	87.53
20	28-31	Victor A. & Lorraine B. Weekley	AR49/717	271.00
21	22-38	Bruce & Sandra L. Parr	368/790	113.0
22	22-37	B.W. Weekley	107/562	15.78
23	22-34	Raymond L. Parr, et al	329/181	55.25
24	22-36	B.W. Weekley	107/562	23.50
25	22-35	Marie Eddy	344/358	52.96
26	28-32	B.W. Weekley	107/562	33.31
27	28-43	Wanda J. Parr	327/435	8.02
28	28-42	Robert H. Anderson	238/76	0.99
29	28-31.1	Joshua M. & Crystal L. Rocchio	348/33	2.30
30	28-31.16	William Morgan	374/472	0.50
31	28-31.12	William Morgan	374/472	1.00
32	28-31.19	James & Peggy Morgan	377/10	0.14
33	28-31.10	Danny Swiger & Peggy Smith	356/675	4.00
34	28-31.20	Randy Wells	445/315	1.00
35	28-31.3	David Lantz & Rita Parr	618/689	5.00
36	28-31.2	David Lantz & Rita Parr	618/689	4.00
37	28-33	B.W. Weekley	107/562	25.30
38	28-35	Shirli N. Baker Jr.	WB 38/1	32.00

Leases	
A	Richard D. & Cathy J. Pyles
B	Joseph L. Sitko, et ux
C	Joseph L. Sitko, et ux
D	Bruce Winkelmann
E	Helen E. Boggs
F	Richard D. & Cathy J. Pyles
G	William S. Nash, et al
H	Ridgetop Capital II, LP
I	Alfred Lonzo Eddy
J	Ridgetop Capital II, LP
K	Marjorie R. Asher Longston, et vir
L	Ridgetop Capital II, LP
M	Anthony Bruce Parr
N	BRC Appalachian Minerals I, LLC
O	Ronald P. Webb
P	Carol J. Knapp
Q	Anthony Bruce Parr, et ux
R	Kendra K. Wyke
S	OPEN
T	Nancy L. Mains
U	Richard Lee White, II
V	Larry Stevens
W	Wanda J. Parr
X	Lucille Adams
Y	Bounty Minerals, LLC

FILE NO: 190-54-E-19
DRAWING NO: Vulcan Unit 2H As-Drilled
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY:
Submeter
PROVEN SOURCE OF ELEVATION:
WVDOT, Harrisville, WV

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION



DATE: February 24 2021
OPERATOR'S WELL NO. Vulcan 2H
API WELL NO
47 - 095 - 02702
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

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DISTRICT: Ellsworth COUNTY: Tyler 03/17/2023

SURFACE OWNER: Richard D. Pyles ACREAGE: 168.5

ROYALTY OWNER: Richard D. & Cathy J. Pyles; Joseph L. Sitko, et ux; Helen E. Boggs; Alfred Lonzo Eddy LEASE NO: ACREAGE: 97.2; 52.938; 271

PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled

PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 6,691' TVD 21,530' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/8/2020
Job End Date:	1/1/2021
State:	West Virginia
County:	Tyler
API Number:	47-095-02702-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	VULCAN 2H
Latitude:	39.50395000
Longitude:	-80.83730000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,708
Total Base Water Volume (gal):	23,162,474
Total Base Non Water Volume:	0



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 WV Department of Environmental Protection Office of Oil and Gas RECEIVED FEB 06 2023				
				7732-18-5	100.00000	86.87153	Density = 8.50
Ingredients	Listed Above	Listed Above	Water WV Department of Environmental Protection Office of Oil and Gas RECEIVED FEB 06 2023				
				7732-18-5	100.00000	0.16902	

022

Sand-Premium White-30/70	Halliburton	Proppant					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
HYDROCHLORIC ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
Excelerate LX-15	Halliburton	Friction Reducer					
				Listed Below			

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 Environmental Protection

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	12.93037	
			Hydrochloric acid	7647-01-0	30.00000	0.03800	
			Complex Amine Compound	Proprietary	60.00000	0.03422	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01711	
			Guar gum	9000-30-0	100.00000	0.00591	
			Surfactant	Proprietary	5.00000	0.00285	
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00285	
			Glutaraldehyde	111-30-8	30.00000	0.00244	
			Ethoxylated alcohols	Proprietary	5.00000	0.00058	
			Organic chloride compound	Proprietary	1.00000	0.00057	
			Alkoxyated polyhydric alcohol	Proprietary	1.00000	0.00057	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00041	
			Methanol	67-56-1	100.00000	0.00032	
			Ammonium persulfate	7727-54-0	100.00000	0.00013	
			Ethanol	64-17-5	1.00000	0.00008	
			Modified thiourea polymer	Proprietary	30.00000	0.00007	
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00007	
			Oxylated phenolic resin	Proprietary	30.00000	0.00004	
			Propargyl alcohol	107-19-7	5.00000	0.00001	
			Hexadecene	629-73-2	5.00000	0.00001	
			Phosphoric acid	7664-38-2	0.10000	0.00001	
			Formaldehyde	50-00-0	0.01000	0.00001	
			Organic salt #1	Proprietary	0.01000	0.00001	
			Sodium glycolate	2836-32-0	0.01000	0.00001	

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			Sodium hydroxide	1310-73-2	0.01000	0.00001	
			Nitrated acetate salt	Proprietary	0.01000	0.00001	
			Organic salt #2	Proprietary	0.01000	0.00001	
			Acrylamide	79-06-1	0.01000	0.00001	
			C.I. pigment Orange 5	3468-63-1	1.00000	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)

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