

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

API 47 - 095 - 02602 County Tyler District McElroy
Quad Shirley 7.5' Pad Name Colorado West Field/Pool Name ---
Farm name Antero Resources Corporation Well Number Flames 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 4361450m Easting 518128m
Landing Point of Curve Northing 518417.94m Easting 4361756.26m
Bottom Hole Northing 4365127m Easting 517336m

Elevation (ft) 749' 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 4/19/2019 Date drilling commenced 1/19/2020 Date drilling ceased 2/27/2020
Date completion activities began 2/21/2021 Date completion activities ceased 4/16/2021
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 298 Open mine(s) (Y/N) depths N
Salt water depth(s) ft 916 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

APPROVED

Reviewed by:
Steve McElroy
06/02/2023
3/30/23

API 47-095 - 02602 Farm name Antero Resources Corporation Well number Flames 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"	105'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	438'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	3081'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	18932'	New	20#, P-110	N/A	Y
Tubing		2-3/8"	6898'		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	204 sx	15.6	1.20	43	0	8 Hrs
Surface	Class A	353 sx	15.6	1.20	75	0	8 Hrs
Coal							
Intermediate 1	Class A	1063 sx	15.6	1.20	210	0	8 Hrs
Intermediate 2							
Intermediate 3							
Production	Class H	792 sx (Lead) 2881 sx (Tail)	13.5 (Lead), 15.2(Tail)	1.4 (Lead), 1.26 (Tail)	646	-500' into Intermediate Casing	8 Hrs
Tubing							

Drillers TD (ft) 18952' MD, 6436' TVD (BHL), 6440' (Deepest Point Drilled) Loggers TD (ft) 18952' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5900'

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 _____

06/02/2023 *SM*

API 47- 095 - 02602 Farm name Antero Resources Corporation Well number Flames 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								

Please insert additional pages as applicable.

WR-35
Rev. 8/23/13

API 47- 095 - 02602 Farm name Antero Resources Corporation Well number Flames 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6387' (TOP)</u> TVD	<u>6945' (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 7336 mcfpd Oil 105 bpd NGL --- bpd Water .22 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	
	0		0		
*PLEASE SEE ATTACHED EXHIBIT 3					

Please insert additional pages as applicable.

Drilling Contractor Patterson Drilling Company
Address 10713 West Sam Houston Parkway North City Houston State TX Zip 77064

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 Sugerland 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 2/7/2023

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

06/02/2023 

LATITUDE 39°25'00"

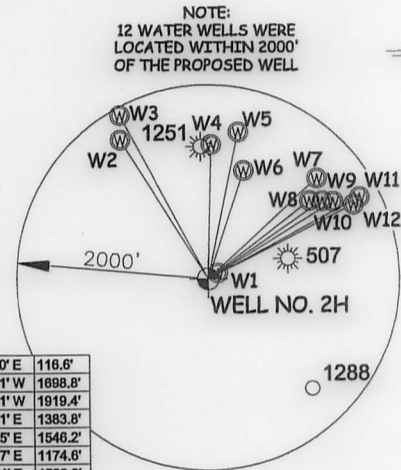
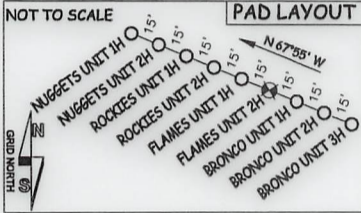
11,198'

1,993' TO BOTTOM HOLE
LATITUDE 39°27'30"

Antero Resources Corporation
Well No. Flames Unit 2H

AS DRILLED DATA:
WELL 2H TOP HOLE INFORMATION:
N: 331,244ft E: 1,635,585ft
LAT: 39°24'08.20" LON: 80°47'22.66"
BOTTOM HOLE INFORMATION:
N: 343,353ft E: 1,633,190ft
LAT: 39°26'07.54" LON: 80°47'55.41"
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 2H TOP HOLE INFORMATION:
N: 4,361,450m E: 518,128m
BOTTOM HOLE INFORMATION:
N: 4,365,127m E: 517,336m



W1	N 58°50' E	116.6'
W2	N 32°31' W	1898.8'
W3	N 28°31' W	1919.4'
W4	N 01°31' E	1383.8'
W5	N 11°55' E	1546.2'
W6	N 18°37' E	1174.6'
W7	N 47°54' E	1539.8'
W8	N 53°04' E	1332.1'
W9	N 68°18' E	1437.9'
W10	N 68°55' E	1531.8'
W11	N 62°11' E	1798.0'
W12	N 63°28' E	1703.7'

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.



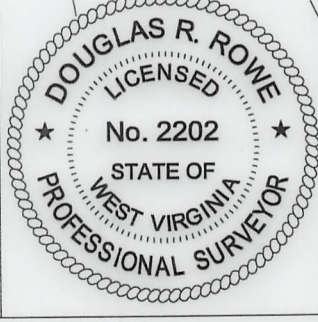
STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO
WEST VIRGINIA 26415

JOB # 19-005WA
DRAWING # FLAMES2HAD
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

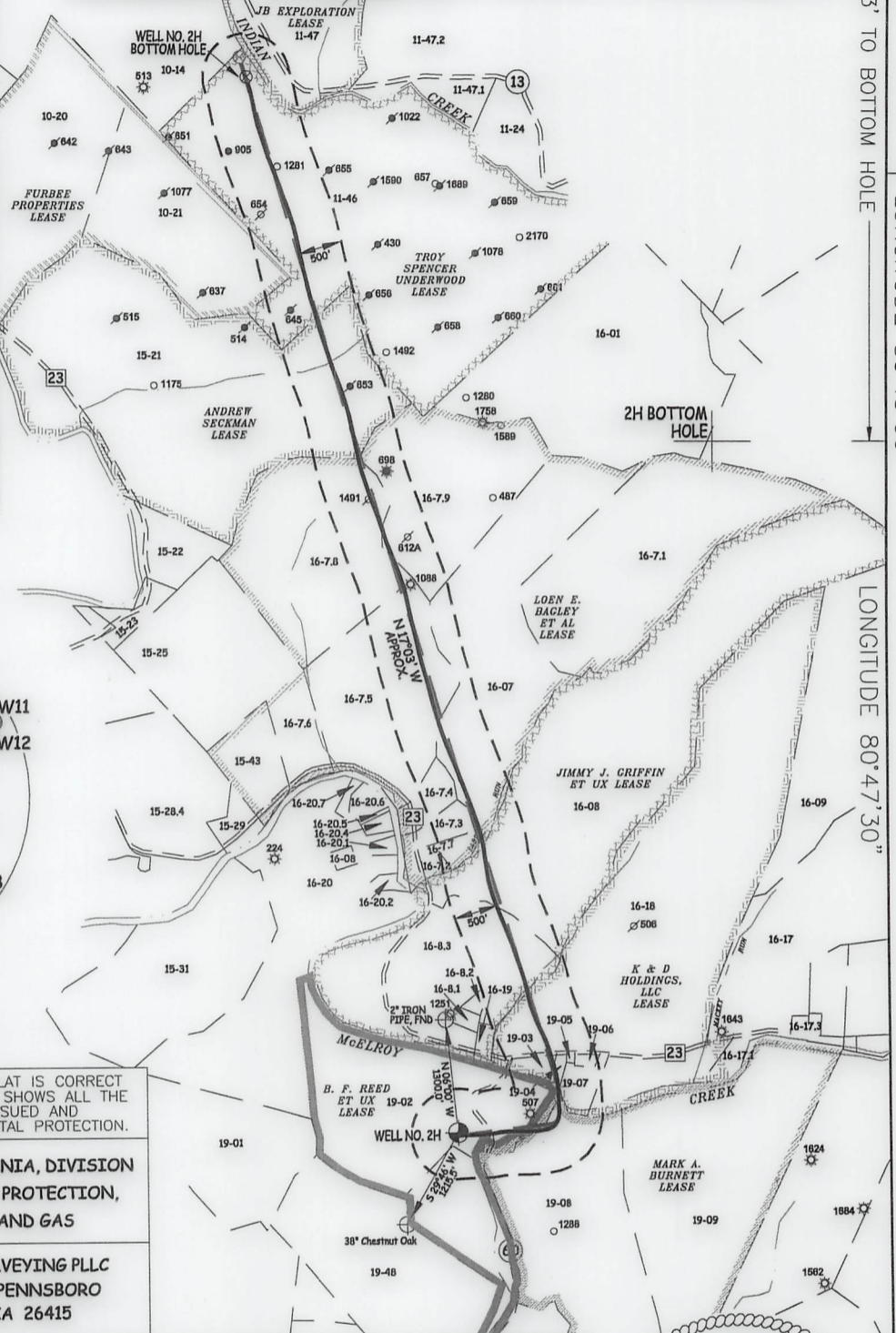
LEGEND
--- Surface Owner Boundary Lines +/-
- - - Interior Surface Tracts +/-
○ Proposed Well Path
○ As Drilled Well Path
DOUGLAS R. ROWE P.S. 2202
DATE 06/09/21
OPERATOR'S WELL# FLAMES UNIT #2H

NOTE
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY 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 RELATIONSHIP TO 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 - 095 - 02602
(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW STATE COUNTY PERMIT
LOCATION: ELEVATION 749' - AS BUILT WATERSHED McELROY CREEK DISTRICT McELROY COUNTY TYLER
QUADRANGLE SHIRLEY 7.5' SURFACE OWNER ANTERO RESOURCES CORPORATION ACREAGE 127.86 ACRES +/-
OIL & GAS ROYALTY OWNER B.F. REED ET UX; MARK A. BURNETT; K & D HOLDINGS, LLC; LEASE ACREAGE 130 AC.±; 256 AC.±; 219.39 AC.±;
JIMMY J. GRIFFIN ET UX; LOEN E. BAGLEY ET AL; ANDREW SECKMAN; TROY SPENCER UNDERWOOD 236 AC.±; 502.8 AC.±; 300 AC.±; 257 AC.±;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL CLEAN OUT & REPLUG
(SPECIFY) AS DRILLED PLUG & ABANDON
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,436' TVD 18,952' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

TM-Par	Surface Owner	15-29	Mitchell Herrick	16-08	June Griffin	16-20.5	Susan Spencer
10-14	Charlene Garrison	15-31	Roger Weese	16-8.1	Roger Griffin	16-20.6	Timothy Spencer
10-20	Kenneth Mason	15-43	Robert Kocher	16-8.2	Roger Griffin	16-20.7	Timothy Spencer
10-21	Kenneth Mason	16-01	Donald VanDine Jr.	16-8.3	Brian Eddy	19-01	Susan Spencer
11-24	Bobby Thomas	16-07	Robert Kocher	16-09	Jamie Straight	19-02	Antero Resources Corp.
11-46	Alva Spencer Est.	16-7.1	Donald Moore	16-17	Charles Straight	19-03	Larry Stevens
11-47	Jay Bee Oil & Gas Inc.	16-7.2	Donna Brumbaugh	16-17.1	Charles Straight	19-04	John Owens
11-47.1	James Cantor Sr.	16-7.3	Mary Blattner	16-17.2	Rodney Tippins	19-05	Paul Weekley
11-47.2	Everett Stanley	16-7.4	Donald Moore	16-17.3	Charles Kimball	19-06	Paul Weekley
15-21	Robert Jennings	16-7.5	Robert Kocher	16-20	Susan Spencer	19-07	Patricia Montgomery
15-22	Joe Kimball	16-7.6	Robert Kocher	16-20.1	Susan Spencer	19-08	John Lewis Jr.
15-23	Kenneth Kline	16-7.7	Robert Kocher	16-20.2	Gary Nichols	19-09	Robert Walsh
15-25	William Roberts	16-7.8	Blattner & Howard LLC	16-20.3	Gary Nichols	19-48	Lloyd Talkington
15-28.4	George Hamilton	16-7.9	Mary Blattner				



WV NORTH ZONE GRID NORTH

8,343' TO BOTTOM HOLE

LONGITUDE 80°45'00"

LONGITUDE 80°47'30"

COUNTY NAME

PERMIT

API 47-095-02602 Farm Name Antero Resources Corporation Well Number Flames Unit 2H

Exhibit 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	2/18/2021	18835.8	18793.3	36	Marcellus
2	2/25/2021	18753.43587	18540.2511	36	Marcellus
3	2/25/2021	18502.38693	18289.2021	36	Marcellus
4	2/25/2021	18251.33799	18038.1532	36	Marcellus
5	2/25/2021	18000.28906	17787.1043	36	Marcellus
6	2/26/2021	17749.24012	17536.0553	36	Marcellus
7	2/26/2021	17498.19119	17285.0064	36	Marcellus
8	2/27/2021	17247.14225	17033.9574	36	Marcellus
9	2/27/2021	16996.09331	16782.9085	36	Marcellus
10	2/27/2021	16745.04438	16531.8596	36	Marcellus
11	2/28/2021	16493.99544	16280.8106	36	Marcellus
12	2/28/2021	16242.9465	16029.7617	36	Marcellus
13	2/28/2021	15991.89757	15778.7128	36	Marcellus
14	2/28/2021	15740.84863	15527.6638	36	Marcellus
15	3/1/2021	15489.7997	15276.6149	36	Marcellus
16	3/1/2021	15238.75076	15025.566	36	Marcellus
17	3/1/2021	14987.70182	14774.517	36	Marcellus
18	3/2/2021	14736.65289	14523.4681	36	Marcellus
19	3/2/2021	14485.60395	14272.4191	36	Marcellus
20	3/2/2021	14234.55502	14021.3702	36	Marcellus
21	3/2/2021	13983.50608	13770.3213	36	Marcellus
22	3/3/2021	13732.45714	13519.2723	36	Marcellus
23	3/3/2021	13481.40821	13268.2234	36	Marcellus
24	3/4/2021	13230.35927	13017.1745	36	Marcellus
25	3/4/2021	12979.31033	12766.1255	36	Marcellus
26	3/4/2021	12728.2614	12515.0766	36	Marcellus
27	3/5/2021	12477.21246	12264.0277	36	Marcellus
28	3/5/2021	12226.16353	12012.9787	36	Marcellus
29	3/5/2021	11975.11459	11761.9298	36	Marcellus
30	3/5/2021	11724.06565	11510.8809	36	Marcellus
31	3/6/2021	11473.01672	11259.8319	36	Marcellus
32	3/6/2021	11221.96778	11008.783	36	Marcellus
33	3/6/2021	10970.91884	10757.734	36	Marcellus
34	3/6/2021	10719.86991	10506.6851	36	Marcellus
35	3/6/2021	10468.82097	10255.6362	36	Marcellus
36	3/7/2021	10217.77204	10004.5872	36	Marcellus
37	3/7/2021	9966.7231	9753.5383	36	Marcellus
38	3/7/2021	9715.674164	9502.48936	36	Marcellus
39	3/7/2021	9464.625228	9251.44043	36	Marcellus
40	3/7/2021	9213.576292	9000.39149	36	Marcellus
41	3/8/2021	8962.527356	8749.34255	36	Marcellus
42	3/8/2021	8711.478419	8498.29362	36	Marcellus
43	3/8/2021	8460.429483	8247.24468	36	Marcellus
44	3/8/2021	8209.380547	7996.19574	36	Marcellus
45	3/8/2021	7958.331611	7745.14681	36	Marcellus
46	3/9/2021	7707.282675	7494.09787	36	Marcellus
47	3/9/2021	7456.233739	7243.04894	36	Marcellus
48	3/9/2021	7205.184802	6992	36	Marcellus

06/02/2023 

API 47-095-02602 Farm Name Antero Resources Corporation Well Number Flames Unit 2H

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	2/18/2021	72.41	7769.22	9400.37	4699.63	182990	216224	N/A
2	2/25/2021	86.88	8323	6443	4272.91	502640	388971	N/A
3	2/25/2021	87.22	8275	5629	4076	499780	379554	N/A
4	2/25/2021	89.13	8304	8241	4158	499670	367621	N/A
5	2/25/2021	86.58	8030.23	4829.09	4785.87	505870	387691	N/A
6	2/26/2021	89.52	8247	6015	4328.11	507550	389392	N/A
7	2/26/2021	92.02	8318	6441	3834	505260	366675	N/A
8	2/27/2021	88.97	8453	5666	4169	506050	369882	N/A
9	2/27/2021	90.91	8473	6584	4097	496320	360703	N/A
10	2/27/2021	84.18	8436	7263	4078.61	502910	364832	N/A
11	2/28/2021	89.76	8212	8171	3792.44	511030	365545	N/A
12	2/28/2021	90.88	8395	7662	3784	518760	370022	N/A
13	2/28/2021	90.28	8428.85	8543.93	3778.24	503830	363703	N/A
14	2/28/2021	84.35	8467	8399	3455.21	510930	365219	N/A
15	3/1/2021	93.16	8414	8009	3647.87	498830	361259	N/A
16	3/1/2021	86.13	8496	7904	4105	528080	570468	N/A
17	3/1/2021	69.1	8390	7554	3649.1	504020	387158	N/A
18	3/2/2021	85.71	8483	8013	4874.82	510220	456086	N/A
19	3/2/2021	78.28	8419.53	9192.24	3946.95	512910	363910	N/A
20	3/2/2021	77.03	8564	8130	3500	509040	362953	N/A
21	3/2/2021	84.12	8271.29	8214.26	3532.72	507070	376095	N/A
22	3/3/2021	69.74	7940.21	6792.42	5183.24	443620	438473	N/A
23	3/3/2021	70.85	8231	6025	4965.17	386370	547896	N/A
24	3/4/2021	86.76	8327.56	6169.04	4559.73	459335	376341	N/A
25	3/4/2021	87.46	8274	6248	5034	503110	361756	N/A
26	3/4/2021	89.74	8151.74	6212.22	5346.25	509820	384527	N/A
27	3/5/2021	89.29	8143.25	6234.63	5424.5	505870	377686	N/A
28	3/5/2021	90.59	8242	6348	4624	497040	357120	N/A
29	3/5/2021	88.65	8257	6835	5232	503730	361055	N/A
30	3/5/2021	89.4	8112.85	6207.16	5391.96	510830	370368	N/A
31	3/6/2021	89.27	7954.19	6251.19	4884.91	509980	374546	N/A
32	3/6/2021	91.47	8389.85	6682.46	4341.22	308750	368195	N/A
33	3/6/2021	88.38	7822.06	7077.66	4087.75	185210	357168	N/A
34	3/6/2021	94.46	8394	7071	3882	182380	355983	N/A
35	3/6/2021	93.11	7990.31	2700.94	3973.29	186830	362822	N/A
36	3/7/2021	85.64	7946.64	2636.09	8034.24	185150	362683	N/A
37	3/7/2021	90.84	8376.12	7313.78	3791.63	180730	357377	N/A
38	3/7/2021	94.76	8307	8258	3787	186030	359965	N/A
39	3/7/2021	94.51	8249.95	8366.94	4087.14	182790	359231	N/A
40	3/7/2021	93.95	7697.41	3295.53	4777.47	182920	359226	N/A
41	3/8/2021	93.35	7724.55	2920.83	5015.36	181610	362176	N/A
42	3/8/2021	92.77	7739.66	3043.81	4298.05	187880	369400	N/A
43	3/8/2021	96.36	7670.15	7174.19	4033.92	184400	356391	N/A
44	3/8/2021	96.64	7952	6774	4235	181690	354074	N/A
45	3/8/2021	94.81	7368.37	3225.95	4998.1	182590	362772	N/A
46	3/9/2021	93.99	7131.91	3268.19	4649.87	185290	352355	N/A
47	3/9/2021	90.54	7655	3353	4464.11	183660	402919	N/A
48	3/9/2021	95.26	7178.56		4590.23	184240	392517	N/A
AVG=		88	8,133	6,442	4,422	18,405,615	18,078,985	TOTAL


06/02/2023 

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	0	310	0	310
Silty sandstone	310	460	310	460
Shale	460	700	460	700
Silty Shale	700	820	700	820
Shale with interbedded limestone	820	850	820	850
Shale	850	880	850	880
Shale w/ trace coal	880	910	880	910
Shaley Sandstone	910	1,180	910	1,180
Shale	1,180	1,240	1,180	1,240
Sandstone w/ interbedded coals	1,240	1,330	1,240	1,330
Sandstone w/ trace coal	1,330	1,480	1,330	1,480
Sandstone	1,480	1,510	1,480	1,510
Shale	1,510	1,640	1,510	N/A
Big Lime	1,640	2,335	1,641	2,337
Fifty Foot Sandstone	2,335	2,440	2,337	2,441
Gordon	2,440	2,752	2,441	2,754
Fifth Sandstone	2,752	2,783	2,754	2,784
Bayard	2,783	3,590	2,784	3,597
Speechley	3,590	3,819	3,597	3,835
Balltown	3,819	4,311	3,835	4,376
Bradford	4,311	4,771	4,376	4,890
Benson	4,771	5,019	4,890	5,170
Alexander	5,019	6,200	5,170	6,507
Sycamore	6,012	6,175	6,303	6,482
Middlesex	6,175	6,310	6,507	6,715
Burkett	6,310	6,341	6,740	6,792
Tully	6,341	6,387	6,817	6,945
Marcellus	6,387	NA	6,945	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.

LATITUDE 39°25'00"

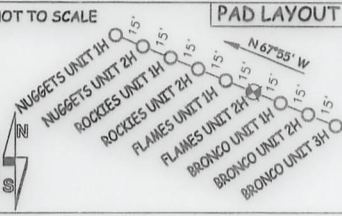
11,198'

1,993' TO BOTTOM HOLE
LATITUDE 39°27'30"

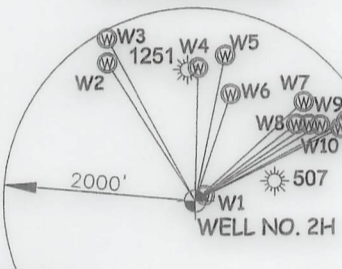
Antero Resources Corporation
Well No. Flames Unit 2H

AS DRILLED DATA:
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N: 331,244ft E: 1,635,585ft
LAT: 39°26'07.54" LON: 80°47'22.66"
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N: 343,353ft E: 1,633,190ft
LAT: 39°26'07.54" LON: 80°47'55.41"
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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 2H TOP HOLE INFORMATION:
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BOTTOM HOLE INFORMATION:
N: 4,365,127m E: 517,336m

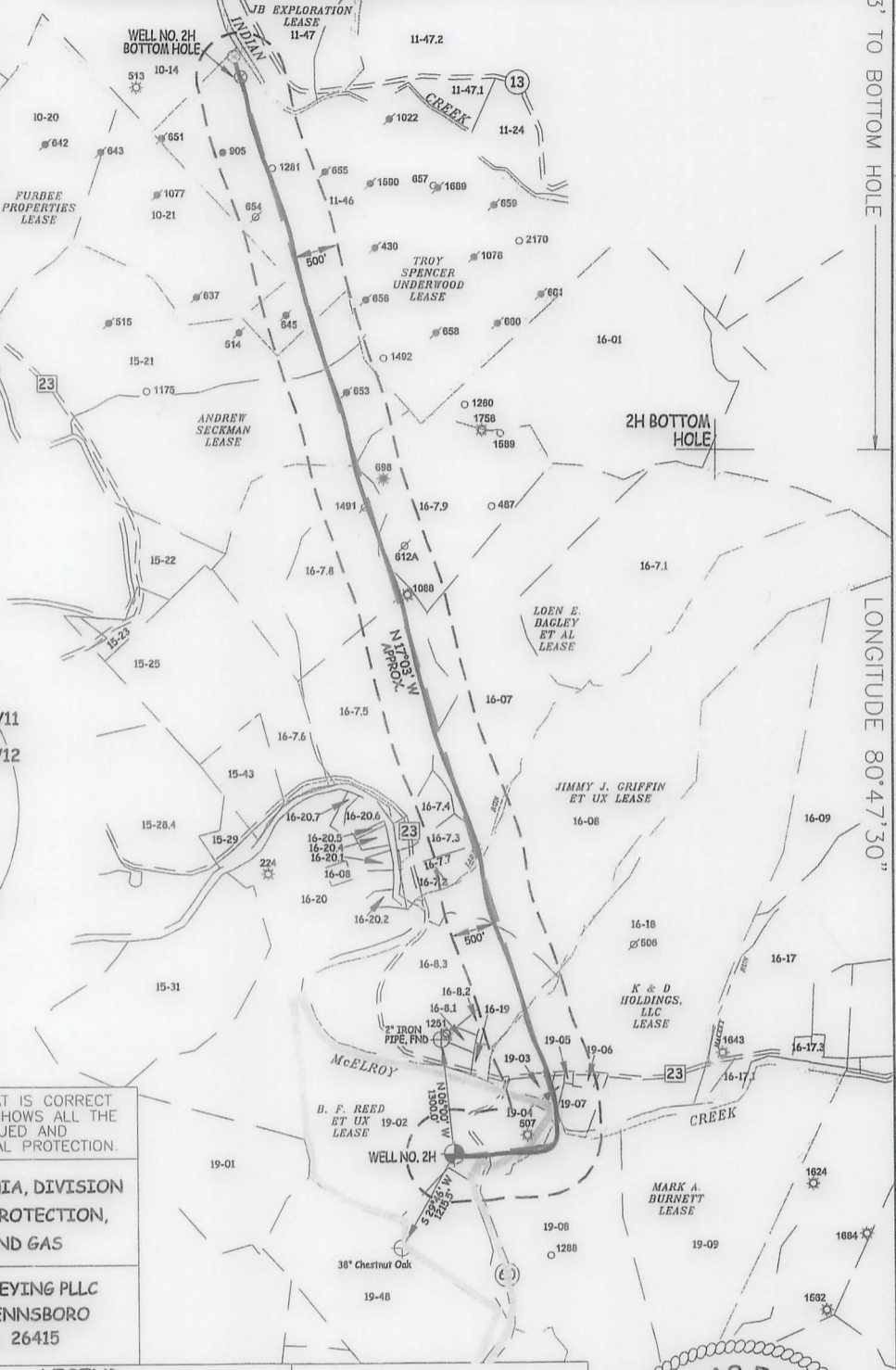


NOTE:
12 WATER WELLS WERE LOCATED WITHIN 2000' OF THE PROPOSED WELL



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W4	N 01°31' E	1383.8'
W5	N 11°55' E	1546.2'
W6	N 18°37' E	1174.6'
W7	N 47°54' E	1539.8'
W8	N 53°04' E	1332.1'
W9	N 56°10' E	1437.9'
W10	N 58°56' E	1531.8'
W11	N 62°11' E	1796.0'
W12	N 63°28' E	1703.7'

TW-Par	Surface Owner	15-29	Mitchell Herrick	16-08	Jane Griffin	16-20.5	Susan Spencer
10-14	Charlene Garrison	15-31	Roger Weese	16-8.1	Roger Griffin	16-20.6	Timothy Spencer
10-20	Kenneth Mason	15-43	Robert Kocher	16-8.2	Roger Griffin	16-20.7	Timothy Spencer
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15-28.4	George Hamilton	16-7.9	Mary Blattner				



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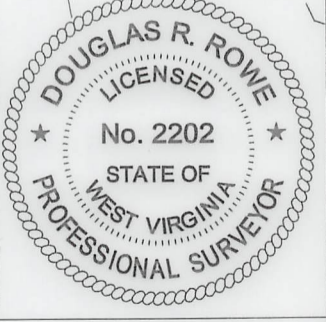
STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO
WEST VIRGINIA 26415

JOB # 19-005WA
DRAWING # FLAMES2HAD
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN 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
D. Rowe
DOUGLAS R. ROWE P.S. 2202
DATE 09/14/20
OPERATOR'S WELL# FLAMES UNIT #2H

NOTE
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WELL TYPE: OIL ___ GAS LIQUID INJECTION ___ WASTE DISPOSAL ___ 47 ___ 095 ___ 02602
(IF "GAS") PRODUCTION STORAGE ___ DEEP ___ SHALLOW STATE COUNTY PERMIT
LOCATION: ELEVATION 749' - AS BUILT WATERSHED McELROY CREEK QUADRANGLE SHIRLEY 7.5' DISTRICT McELROY COUNTY TYLER
SURFACE OWNER ANTERO RESOURCES CORPORATION ACREAGE 127.86 ACRES +/-
OIL & GAS ROYALTY OWNER B.F. REED ET UX; MARK A. BURNETT; K & D HOLDINGS, LLC; LEASE ACREAGE 130 AC.±; 256 AC.±; 219.39 AC.±;
JIMMY J. GRIFFIN ET UX; LOEN E. BAGLEY ET AL; ANDREW SECKMAN; TROY SPENCER UNDERWOOD 236 AC.±; 502.8 AC.±; 300 AC.±; 257 AC.±;
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 6,436' TVD 18,952' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

5,241' TO BOTTOM HOLE
LONGITUDE 80°45'00"

LONGITUDE 80°47'30"

COUNTY NAME

PERMIT

LATITUDE 39°25'00"

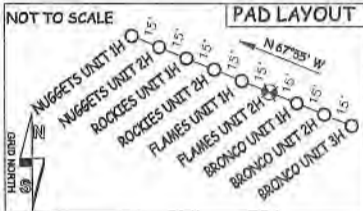
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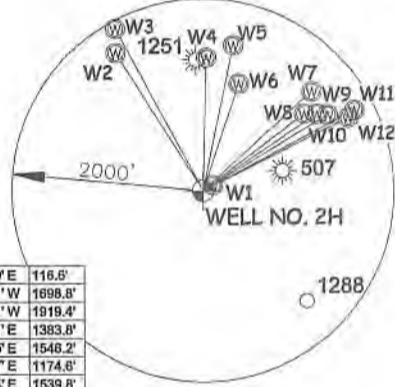
Antero Resources Corporation
Well No. Flames Unit 2H

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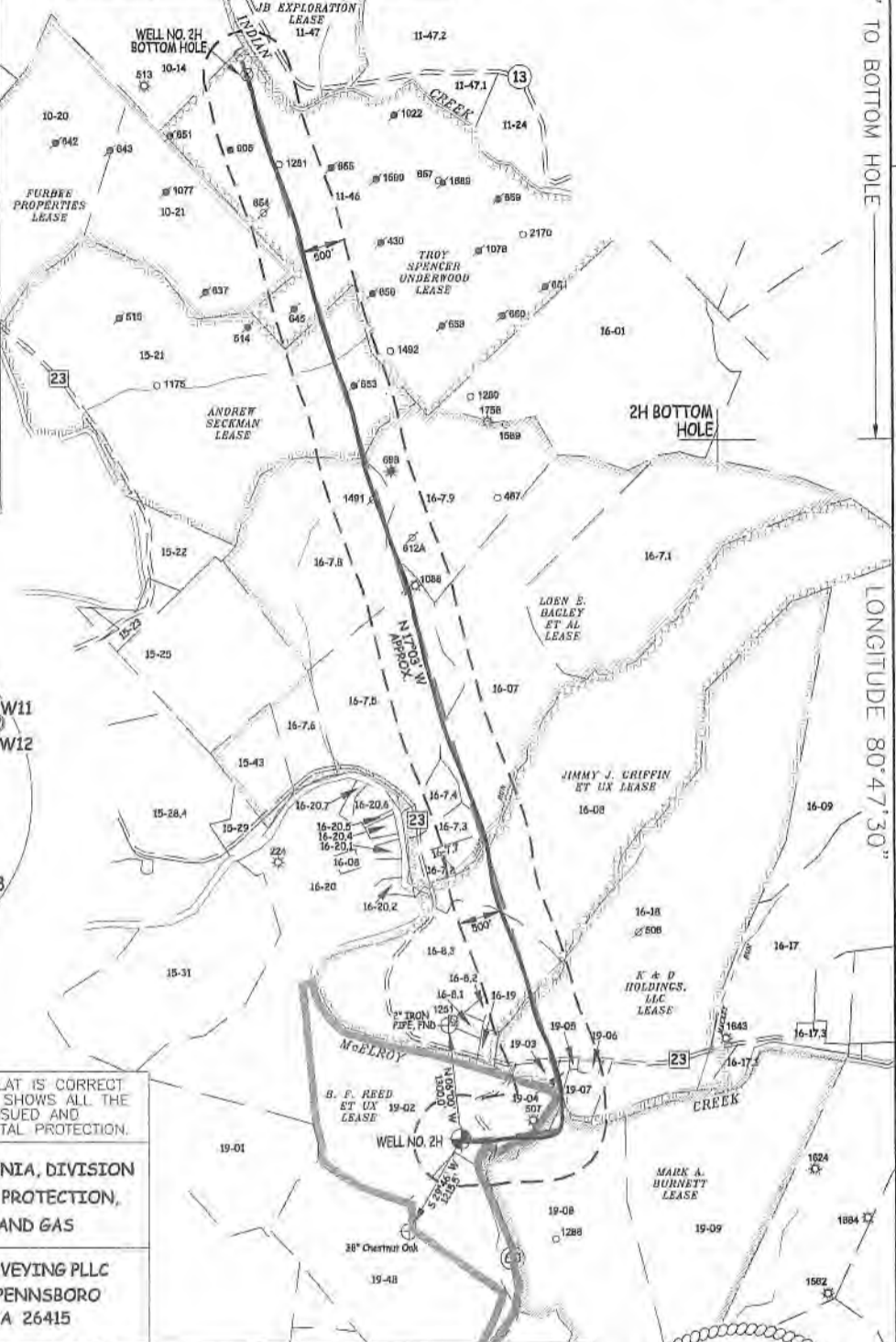


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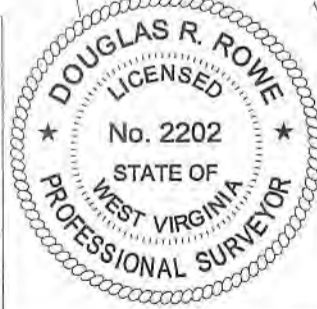


STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 19-005WA
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MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN 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
[Signature]
DOUGLAS R. ROWE P.S. 2202
DATE 06/09/21
OPERATOR'S WELL # FLAMES UNIT #2H

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(IF "GAS") PRODUCTION STORAGE _____ DEEP _____ SHALLOW STATE COUNTY PERMIT
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OIL & GAS ROYALTY OWNER B.F. REED ET UX; MARK A. BURNETT; K & D HOLDINGS, LLC; JIMMY J. GRIFFIN ET UX; LOEN E. BAGLEY ET AL; ANDREW SECKMAN; TROY SPENCER UNDERWOOD LEASE ACREAGE 130 AC.±; 256 AC.±; 219.39 AC.±; 236 AC.±; 502.8 AC.±; 300 AC.±; 257 AC.±;
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ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

[Handwritten signature]

LATITUDE 39°25'00"

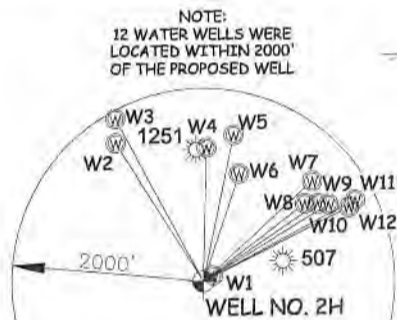
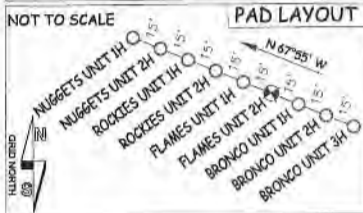
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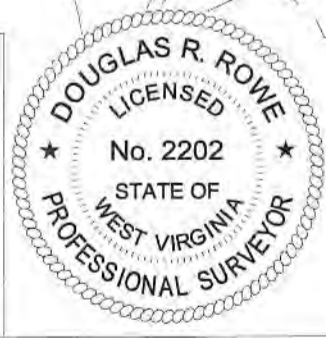


STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

JOB # 19-005WA
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MINIMUM DEGREE OF ACCURACY SUBMETER
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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
DATE 09/14/20
OPERATOR'S WELL # FLAMES UNIT #2H

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WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 095 02602
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
LOCATION: ELEVATION 749' - AS BUILT WATERSHED: McELROY CREEK STATE COUNTY PERMIT
QUADRANGLE SHIRLEY 7.5' DISTRICT McELROY COUNTY TYLER
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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
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WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 ADDRESS CHARLESTON, WV 25313

SM 3/21/23

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	2/8/2021
Job End Date:	3/9/2021
State:	West Virginia
County:	Tyler
API Number:	47-095-02602-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	FLAMES UNIT 2H
Latitude:	39.40228000
Longitude:	-80.78963000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,440
Total Base Water Volume (gal):	18,832,642
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	7732-18-5	100.00000	90.83244	Density = 8.50
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.09860	

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OPTIFLO-II DELAYED RELEASE BREAKER	Halliburton	Breaker					
				Listed Below			
Sand-Premium White-40/70	Halliburton	Proppant					
				Listed Below			
HAI-501	Halliburton	Acid Corrosion Inhibitor					
				Listed Below			
HYDROCHLORI C ACID, 22 BAUME	Halliburton	Solvent					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
FLUID Enviro- Syn HCR-7000- WL	Fluid Energy Group	Acid Replacement					
				Listed Below			
Sand-Common White-100 Mesh, SSA-2	Halliburton	Proppant					
				Listed Below			
Sand-Premium White-30/70	Halliburton	Proppant					
				Listed Below			

Excelerate LX-15	Halliburton	Friction Reducer					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
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	8.99256	
			Complex Amine Compound	Proprietary	60.00000	0.04031	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02015	
			Hydrochloric acid	7647-01-0	30.00000	0.01489	
			Guar gum	9000-30-0	100.00000	0.01065	
			Proprietary	Proprietary	20.00000	0.00772	
			Proprietary	Proprietary	10.00000	0.00386	
			Surfactant	Proprietary	5.00000	0.00336	
			Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00336	
			Glutaraldehyde	111-30-8	30.00000	0.00260	
			Ethoxylated alcohols	Proprietary	5.00000	0.00068	
			Alkoxyated polyhydric alcohol	Proprietary	1.00000	0.00067	
			Organic chloride compound	Proprietary	1.00000	0.00067	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00043	
			Ammonium persulfate	7727-54-0	100.00000	0.00021	
			Methanol	67-56-1	100.00000	0.00018	
			Ethanol	64-17-5	1.00000	0.00009	
			Oxylated phenolic resin	Proprietary	30.00000	0.00006	

			Modified thiourea polymer	Proprietary	30.00000	0.00003	
			Mixture of dimer and trimer fatty acids of indefinite composition derived from tall oil	61790-12-3	30.00000	0.00003	
			Phosphoric acid	7664-38-2	0.10000	0.00001	
			Organic salt #2	Proprietary	0.01000	0.00001	
			Sodium glycolate	2836-32-0	0.01000	0.00001	
			Sodium hydroxide	1310-73-2	0.01000	0.00001	
			Organic salt #1	Proprietary	0.01000	0.00001	
			Formaldehyde	50-00-0	0.01000	0.00001	
			Nitrated acetate salt	Proprietary	0.01000	0.00001	
			Acrylamide	79-06-1	0.01000	0.00001	
			Propargyl alcohol	107-19-7	5.00000	0.00000	
			Hexadecene	629-73-2	5.00000	0.00000	
			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)