

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

API 47-095-02537 County Tyler District Meade
Quad Middlebourne 7.5' Pad Name Rush Fork Pad Field/Pool Name -----
Farm name Joseph R. Rymer Jr. Well Number Carse Unit 2H
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 4363050m Easting 502628m
Landing Point of Curve Northing 4362894.07m Easting 502373.85m
Bottom Hole Northing 4359534m Easting 503625m

Elevation (ft) 986' 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 11/9/2018 Date drilling commenced 12/8/2019 Date drilling ceased 5/10/2019
Date completion activities began 8/13/2019 Date completion activities ceased 11/28/2019
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 30, 81 Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1461, 1485, 1510 Void(s) encountered (Y/N) depths No
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by: JCS 9/18/2020
John Cragin Blevins
Digitally signed by John Cragin Blevins
Date: 2020.09.18 08:57:00 -0400

API 47-095 - 02537 Farm name Joseph R. Rymer Jr. Well number Carse Unit 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"	393'	New	54.5#, J-55	N/A	Y	
Coal								
Intermediate 1	12-1/4"	9-5/8"	2595'	New	36#, J-55	N/A	Y	
Intermediate 2								
Intermediate 3								
Production	8-3/4"/8-1/2"	5-1/2"	18612'	New	23#, HCP-110	N/A	Y	
Tubing		2-3/8"	7154'		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	300 sk	15.6	1.18	241	0'	8 Hrs.
Surface	Class A	373 sk	15.6	1.20	635	0'	8 Hrs.
Coal							
Intermediate 1	Class A	890 sk	15.6	1.19	1082	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	792 sk (Lead) 1184sk (Tail)	14.5 (Lead), 15.2(Tail)	1.4 (Lead), 1.6 (Tail)	3003	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 18631' MD, 6307' TVD (BHL), 6310' (Deepest Point Drilled) Loggers TD (ft) 18631' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5600'

Check all wireline logs run
 caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall 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

API 47- 095 - 02537 Farm name Joseph R. Rymer Jr. Well number Carse Unit 2H

PRODUCING FORMATION(S)

DEPTHS

Marcellus 6130' (TOP) TVD 6537' (TOP) MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow Oil Test Flow Pump

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 11216 mcfpd 228 bpd Oil --- bpd NGL 183 bpd Water 183 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP		BOTTOM		DEPTH IN FT		DEPTH IN FT		DEPTH IN FT		DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	DEPTH IN FT	TVD	DEPTH IN FT	TVD	MD	MD	MD	MD	MD		
	0		0								

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling LLC
Address 582 Spring Run Road City Pennsboro State WV Zip 26415

Logging Company KLX Energy Services
Address 6072 W Veterans Memorial Hwy City Bridgeport State WV Zip 26330

Cementing Company Schlumberger Oilfield Services
Address 300 Schlumberger Dr City Sugarland State TX Zip 77478

Stimulating Company CalFrac Well Services
Address 171 17th Street, Suite 1445 City Denver State CO Zip 80202

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223
Signature _____ Title Permitting Agent Date _____

2537

API 47-095-02444-Farm Name Joseph R. Rymer Jr. Well Number Carse Unit 2H

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	8/12/2019	18507	18460	60	Marcellus
2	8/13/2019	18422.458	18256.748	60	Marcellus
3	8/13/2019	18221.206	18055.496	60	Marcellus
4	8/14/2019	18019.954	17854.244	60	Marcellus
5	8/14/2019	17818.702	17652.992	60	Marcellus
6	8/15/2019	17617.45	17451.74	60	Marcellus
7	8/15/2019	17416.198	17250.488	60	Marcellus
8	8/16/2019	17214.946	17049.236	60	Marcellus
9	8/16/2019	17013.694	16847.984	60	Marcellus
10	8/17/2019	16812.442	16646.732	60	Marcellus
11	8/18/2019	16611.19	16445.48	60	Marcellus
12	8/18/2019	16409.938	16244.228	60	Marcellus
13	8/18/2019	16208.686	16042.976	60	Marcellus
14	8/18/2019	16007.434	15841.724	60	Marcellus
15	8/20/2019	15806.182	15640.472	60	Marcellus
16	8/22/2019	15604.93	15439.22	60	Marcellus
17	8/23/2019	15403.678	15237.968	60	Marcellus
18	8/23/2019	15202.426	15036.716	60	Marcellus
19	8/24/2019	15001.174	14835.464	60	Marcellus
20	8/25/2019	14799.922	14634.212	60	Marcellus
21	8/25/2019	14598.67	14432.96	60	Marcellus
22	8/26/2019	14397.418	14231.708	60	Marcellus
23	8/27/2019	14196.166	14030.456	60	Marcellus
24	8/27/2019	13994.914	13829.204	60	Marcellus
25	8/27/2019	13793.662	13627.952	60	Marcellus
26	8/28/2019	13592.41	13426.7	60	Marcellus
27	8/28/2019	13391.158	13225.448	60	Marcellus
28	8/29/2019	13189.906	13024.196	60	Marcellus
29	8/29/2019	12988.654	12822.944	60	Marcellus
30	8/29/2019	12787.402	12621.692	60	Marcellus
31	8/30/2019	12586.15	12420.44	60	Marcellus
32	8/30/2019	12384.898	12219.188	60	Marcellus
33	8/31/2019	12183.646	12017.936	60	Marcellus
34	8/31/2019	11982.394	11816.684	60	Marcellus
35	9/1/2019	11781.142	11615.432	60	Marcellus
36	9/1/2019	11579.89	11414.18	60	Marcellus
37	9/2/2019	11378.638	11212.928	60	Marcellus
38	9/2/2019	11177.386	11011.676	60	Marcellus
39	9/3/2019	10976.134	10810.424	60	Marcellus
40	9/3/2019	10774.882	10609.172	60	Marcellus
41	9/3/2019	10573.63	10407.92	60	Marcellus
42	9/4/2019	10372.378	10206.668	60	Marcellus
43	9/4/2019	10171.126	10005.416	60	Marcellus
44	9/4/2019	9969.874	9804.164	60	Marcellus
45	9/5/2019	9768.622	9602.912	60	Marcellus
46	9/5/2019	9567.37	9401.66	60	Marcellus
47	9/6/2019	9366.118	9200.408	60	Marcellus
48	9/6/2019	9164.866	8999.156	60	Marcellus
49	9/6/2019	8963.614	8797.904	60	Marcellus
50	9/7/2019	8762.362	8596.652	60	Marcellus
51	9/7/2019	8561.11	8395.4	60	Marcellus
52	9/7/2019	8359.858	8194.148	60	Marcellus
53	9/8/2019	8158.606	7992.896	60	Marcellus
54	9/8/2019	7957.354	7791.644	60	Marcellus
55	9/8/2019	7756.102	7590.392	60	Marcellus
56	9/9/2019	7554.85	7389.14	60	Marcellus
57	9/9/2019	7353.598	7187.888	60	Marcellus
58	9/10/2019	7152.346	6986.636	60	Marcellus
59	9/10/2019	6951.094	6785.384	60	Marcellus
60	9/10/2019	6749.842	6584.132	60	Marcellus

RECEIVED
Office of Oil and Gas

AUG 31 2020

WV Department of
Environmental Protection

2537

API 47-095-00000-Farm Name Joseph R. Rymor Jr., Well Number Carse 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	8/12/2019	73.03906	7975.121	5761	4133	288520	4642.506	N/A
2	8/13/2019	76.70062	7925.691	6952	4881	286860	8834.806	N/A
3	8/13/2019	79.17382	8236.479	5905	4586	281340	8777.81	N/A
4	8/14/2019	76.74974	8016.883	6122	3439	282400	8767.26	N/A
5	8/14/2019	79.69976	7960.411	5872	4417	279940	8738.74	N/A
6	8/15/2019	79.17255	7957.369	5791	4067	278920	8627.77	N/A
7	8/15/2019	79.48534	8251.383	5604	4251	282640	8943.71	N/A
8	8/16/2019	73.12968	8126.496	5505	3633	282600	8738.7	N/A
9	8/16/2019	68.99791	8375.914	7292	3480	278540	9183.73	N/A
10	8/17/2019	65.31565	8119.859	6014	3596	284760	8718.95	N/A
11	8/18/2019	65.43001	8097.128	7305	3479	288520	8777.25	N/A
12	8/18/2019	70.63998	8229.159	6694	3485	277160	8801.66	N/A
13	8/18/2019	73.01793	8114.037	5676	3575	286000	8707.44	N/A
14	8/18/2019	78.85612	7966.913	6619	3534	271200	8778.01	N/A
15	8/20/2019	78.04329	8175.312	5630	3293	281260	8993.12	N/A
16	8/22/2019	61.49676	8236.325	6767	5000	288100	10375.36	N/A
17	8/23/2019	74.72191	8018.069	6202	3342	277780	8699.37	N/A
18	8/23/2019	64.17487	7856.286	7643	3514	282640	14406.23	N/A
19	8/24/2019	77.47268	8224.543	5053	4186	276240	8809.7	N/A
20	8/25/2019	78.9793	8080.368	5832	3378	280420	8554.85	N/A
21	8/25/2019	69.36431	7659.199	5521	3544	281020	12170.11	N/A
22	8/26/2019	76.86466	7511.279	6500	4266	281720	8511.06	N/A
23	8/27/2019	72.42696	7591.799	6957	3502	284500	8587.89	N/A
24	8/27/2019	73.08673	7966.216	5520	3986	280160	8843.04	N/A
25	8/27/2019	82.07748	8071.141	7024	3477	281040	8366.27	N/A
26	8/28/2019	83.72225	7949.574	5844	4078	274660	8605.49	N/A
27	8/28/2019	84.88638	7747.897	6990	3534	274460	8628.73	N/A
28	8/29/2019	84.89637	7898.41	6818	3733	279600	8565.54	N/A
29	8/29/2019	86.7872	7864.67	5677	3742	271460	8656.47	N/A
30	8/29/2019	85.92645	7909.989	5933	3834	279940	8491.33	N/A
31	8/30/2019	85.14064	7402.654	5160	4270	279240	8604.26	N/A
32	8/30/2019	85.55767	7469.35	5973	3747	281420	8674.96	N/A
33	8/31/2019	84.29674	7553.988	4660	3985	279840	8698.84	N/A
34	8/31/2019	84.33958	7684.731	5988	4235	281620	8603.51	N/A
35	9/1/2019	82.17472	7686.079	6269	3779	280660	11190.09	N/A
36	9/1/2019	83.03731	7274.12	5466	3502	281320	8464.82	N/A
37	9/2/2019	84.62201	7407.154	5377	3880	281180	8523.46	N/A
38	9/2/2019	85.83008	7689.614	5279	4413	279460	9635.98	N/A
39	9/3/2019	85.93623	7563.308	5269	3430	280960	8382.08	N/A
40	9/3/2019	81.37086	7270.691	5631	3750	280680	8651.47	N/A
41	9/3/2019	85.42887	7386.687	4558	3475	279700	8445.49	N/A
42	9/4/2019	84.27304	7234.883	4660	4053	278500	8429.3	N/A
43	9/4/2019	83.94013	7223.474	4693	4002	280160	8549.48	N/A
44	9/4/2019	87.84415	7666.248	5396	4340	282180	8347.29	N/A
45	9/5/2019	83.80044	7489.505	5235	4281	280040	8348.33	N/A
46	9/5/2019	85.85856	7557.553	5579	5180	280020	8431.1	N/A
47	9/6/2019	83.3125	7483.389	4889	4960	279180	8425.05	N/A
48	9/6/2019	86.7602	7360.751	6139	3377	283340	8406.88	N/A
49	9/6/2019	87.52495	7178.251	5474	3318	280680	8411	N/A
50	9/7/2019	87.07848	7397.738	5085	3765	281040	8377.28	N/A
51	9/7/2019	84.3018	7056.058	5344	3436	279560	8460.17	N/A
52	9/7/2019	85.42532	7070.968	5070	3237	280920	8376.46	N/A
53	9/8/2019	82.44999	7027.679	5772	3381	280620	8310.54	N/A
54	9/8/2019	84.91814	6912.811	6248	3469	279560	8383.2	N/A
55	9/8/2019	86.47574	6815.892	5769	3589	277780	8280.19	N/A
56	9/9/2019	83.28788	7034.689	6320	3314	279800	8276.73	N/A
57	9/9/2019	87.76157	7078.587	5992	3569	278980	8341.04	N/A
58	9/10/2019	85.83761	6688.744	5469	3669	280140	8328.89	N/A
59	9/10/2019	86.60626	6894.721	6005	3928	321020	8328.82	N/A
60	9/10/2019	84.86596	6687.296	5569	4607	321020	8332.57	N/A
AVG=		77	7,956	6,146	3,847	9,264,900	294,281	TOTAL

RECEIVED
Office of Oil and Gas

AUG 31 2020

WV Department of
Environmental Protection

2537

API 47-095-02444 Farm Name Joseph R. Rymer Jr. Well Number Carse Unit 2H

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	0		215		0		215	
Sandy Siltstone	215		385		215		385	
Shaly Siltstone	385		585		385		585	
Silty sandstone	585		625		585		625	
Shaly Siltstone	625		745		625		745	
Silty sandstone	745		805		745		805	
Sandy Siltstone	805		865		805		865	
Shaly Siltstone	865		985		865		985	
Silty Shale	985		1,185		985		1,185	
Silty Sandstone	1,185		1,475		1,185		1,475	
Sandstone	1,475		1,645		1,475		1,645	
Sandy Siltstone	1,645		1,745		1,645		1,745	
Silty sandstone	1,745		1,787		1,745		1,805	
Big Lime	1,802		2,694		1,780		2,696	
Fifty Foot Sandstone	2,694		2,813		2,671		2,815	
Gordon	2,813		3,163		2,790		3,169	
Fifth Sandstone	3,163		3,366		3,144		3,376	
Bayard	3,366		4,062		3,351		4,115	
Speechley	4,062		4,339		4,090		4,413	
Balltown	4,339		4,539		4,388		4,628	
Bradford	4,539		4,721		4,603		4,826	
Benson	4,721		4,860		4,801		4,977	
Alexander	4,860		6,040		4,952		6,301	
Sycamore	5,920		6,015		6,134		6,276	
Middlesex	6,015		6,106		6,276		6,465	
Burkett	6,106		6,123		6,465		6,513	
Tully	6,123		6,130		6,513		6,537	
Marcellus	6,130		NA		6,537		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 departmental

RECEIVED
Office of Oil and Gas

AUG 31 2020

WV Department of
Environmental Protection

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/12/2019
Job End Date:	9/10/2019
State:	West Virginia
County:	Tyler <i>2537</i>
API Number:	47-095-0244-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Carse Unit 2H
Latitude:	39.41689170
Longitude:	-80.96964100
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,308
Total Base Water Volume (gal):	22,792,780
Total Base Non Water Volume:	0

RECEIVED
Office of Oil and Gas
AUG 31 2020
WV Department of
Environmental Protection

Hydraulic Fracturing Fluid Composition

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Supplied by Operator	Base Fluid					
CaGel 4000	CWS	Gel Slurry					
			Water	7732-18-5	100.00000	88.55597	
							Listed Below



			Listed Below						
DAP-902	CMS	Scale Inhibitor							
			Listed Below						
Sand (Proppant)	CMS	Propping Agent							
			Listed Below						
Sanifrac 8844	CMS	Biocide							
			Listed Below						
			Listed Below						
Other Chemical (s)	Listed Above	See Trade Name (s) List							
			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	11.14101				
		Calcite	471-34-1	1.00000	0.07764				
		Hydrochloric acid	7647-01-0	37.00000	0.06257				
		Illite	12173-60-3	1.00000	0.03375				
		Guar gum	9000-30-0	60.00000	0.02912				
		Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02912				
		Apatite	64476-38-6	0.10000	0.01114				
		Biotite	1302-27-8	0.10000	0.01114				
		Goethite	1310-14-1	0.10000	0.01114				
		Copolymer of 2-propanamide	69418-26-4	30.00000	0.00893				
		Polyethylene glycol mixture	25322-68-3	54.50000	0.00594				
		Polymer	26100-47-0	45.00000	0.00541				
		Ammonium chloride	12125-02-9	11.00000	0.00371				

RECEIVED
Office of Oil and Gas

AUG 31 2020

WV Department of
Environmental Protection

LATITUDE 39°27'30"

3,195'

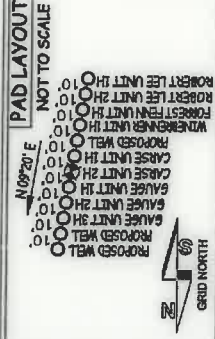
LATITUDE 39°25'00"

LATITUDE 39°27'30"

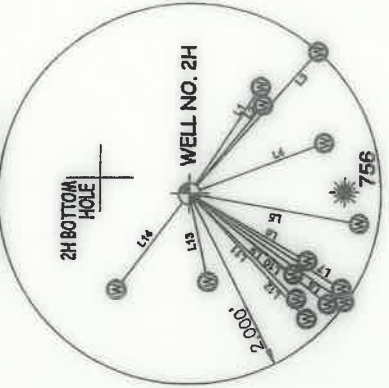
Antero Resources Corporation
Well No. Carse Unit 2H

AS DRILLED DATA:
 WELL 2H TOP HOLE INFORMATION:
 N: 337,346ft E: 1,594,810ft
 LAT: 39°25'00.91" LON: 80°58'10.71"
 BOTTOM HOLE INFORMATION:
 N: 325,753ft E: 1,587,889ft
 LAT: 39°23'06.74" LON: 80°57'29.07"
 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: 4,363,050m E: 502,628m
 BOTTOM HOLE INFORMATION:
 N: 4,359,534m E: 503,625m



14 WATER WELLS WERE LOCATED WITHIN 2000' OF 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 # 17-022WA
 DRAWING # CARSEHAD
 SCALE 1" = 2000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

DATE 03/09/20
 OPERATOR'S WELL # CARSE UNIT #2H

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

WELL TYPE: OIL LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 986' - AS BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK QUADRANGLE MIDDLEBOURNE 7.5

SURFACE OWNER JOSEPH R. RYMER JR.
 OIL & GAS ROYALTY OWNER HOWARD HARCHA III; JAMES D. WHITE; THERESA J. WELLS; BRENDA MAYS; LEASE ACREAGE 44.33 AC ± 134.53 AC ± 17.5 AC ± 327 AC ±
 KERR-MCGEE OIL & GAS ONSHORE LP; FORREST MILLER; KENNETH JONES; CARL JACK VILCOX; ALLEN SMITH; EDWARD D. BILL JR.; 23.97 AC ± 84.88 AC ± 65.5 AC ± 128.86 AC ± 149.18 AC ± 5.5 AC ±
 RALPH PHILLIPS ET UX; JOEL YNNI FAMILY PRESERVATION TRUST; JOEL YNNI FAMILY PRESERVATION TRUST
 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
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,307' TVD 18,631' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313
 FORM WW-6

COUNTY NAME COUNTY TYLER PERMIT 02537
 STATE COUNTY DISTRICT MEADE COUNTY TYLER ACREAGE 44.33 ACRES ±

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

THOMAS SUMMERS P.S. 2109

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. AS DRILLED DATA SHOWN HEREON WAS PROVIDED BY RESOURCES CORPORATION.
 3. 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.
 4. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

B-02	Charles Moore	330/138	105.99 AC
B-21	Allen Means	459/217	1,277 AC
B-22	Andrew Westbrock	324/315	1.81 AC
B-23	Wesley Smith	501/17	1.81 AC
B-24	Donald H. Brown	300/471	8,107 AC
B-25	Henry McQuinn	287/730	4,229 AC
B-26	John McQuinn	335/426	1,009 AC
B-27	William Brown	335/426	282.2 AC
B-31	William Brown	335/426	282.2 AC
B-32	William Brown	335/426	282.2 AC
B-33	William Brown	335/426	282.2 AC
B-34	William Brown	335/426	282.2 AC
B-35	William Brown	335/426	282.2 AC
B-36	William Brown	335/426	282.2 AC
B-37	William Brown	335/426	282.2 AC
B-38	William Brown	335/426	282.2 AC
B-39	William Brown	335/426	282.2 AC
B-40	William Brown	335/426	282.2 AC
B-41	William Brown	335/426	282.2 AC
B-42	William Brown	335/426	282.2 AC
B-43	William Brown	335/426	282.2 AC
B-44	William Brown	335/426	282.2 AC
B-45	William Brown	335/426	282.2 AC
B-46	William Brown	335/426	282.2 AC
B-47	William Brown	335/426	282.2 AC
B-48	William Brown	335/426	282.2 AC
B-49	William Brown	335/426	282.2 AC
B-50	William Brown	335/426	282.2 AC
B-51	William Brown	335/426	282.2 AC
B-52	William Brown	335/426	282.2 AC
B-53	William Brown	335/426	282.2 AC
B-54	William Brown	335/426	282.2 AC
B-55	William Brown	335/426	282.2 AC
B-56	William Brown	335/426	282.2 AC
B-57	William Brown	335/426	282.2 AC
B-58	William Brown	335/426	282.2 AC
B-59	William Brown	335/426	282.2 AC
B-60	William Brown	335/426	282.2 AC
B-61	William Brown	335/426	282.2 AC
B-62	William Brown	335/426	282.2 AC
B-63	William Brown	335/426	282.2 AC
B-64	William Brown	335/426	282.2 AC
B-65	William Brown	335/426	282.2 AC
B-66	William Brown	335/426	282.2 AC
B-67	William Brown	335/426	282.2 AC
B-68	William Brown	335/426	282.2 AC
B-69	William Brown	335/426	282.2 AC
B-70	William Brown	335/426	282.2 AC
B-71	William Brown	335/426	282.2 AC
B-72	William Brown	335/426	282.2 AC
B-73	William Brown	335/426	282.2 AC
B-74	William Brown	335/426	282.2 AC
B-75	William Brown	335/426	282.2 AC
B-76	William Brown	335/426	282.2 AC
B-77	William Brown	335/426	282.2 AC
B-78	William Brown	335/426	282.2 AC
B-79	William Brown	335/426	282.2 AC
B-80	William Brown	335/426	282.2 AC
B-81	William Brown	335/426	282.2 AC
B-82	William Brown	335/426	282.2 AC
B-83	William Brown	335/426	282.2 AC
B-84	William Brown	335/426	282.2 AC
B-85	William Brown	335/426	282.2 AC
B-86	William Brown	335/426	282.2 AC
B-87	William Brown	335/426	282.2 AC
B-88	William Brown	335/426	282.2 AC
B-89	William Brown	335/426	282.2 AC
B-90	William Brown	335/426	282.2 AC
B-91	William Brown	335/426	282.2 AC
B-92	William Brown	335/426	282.2 AC
B-93	William Brown	335/426	282.2 AC
B-94	William Brown	335/426	282.2 AC
B-95	William Brown	335/426	282.2 AC
B-96	William Brown	335/426	282.2 AC
B-97	William Brown	335/426	282.2 AC
B-98	William Brown	335/426	282.2 AC
B-99	William Brown	335/426	282.2 AC
B-100	William Brown	335/426	282.2 AC

LONGITUDE 80°57'30"

11,095'

11,459' TO BOTTOM HOLE

LONGITUDE 80°55'00"



LATITUDE 39°25'00"

11,704'

LATITUDE 39°27'30"

LATITUDE 39°27'30"

LATITUDE 39°27'30"

GRID NORTH

WY NORTH ZONE

LATITUDE 39°27'30"

3,195'

LATITUDE 39°25'00"

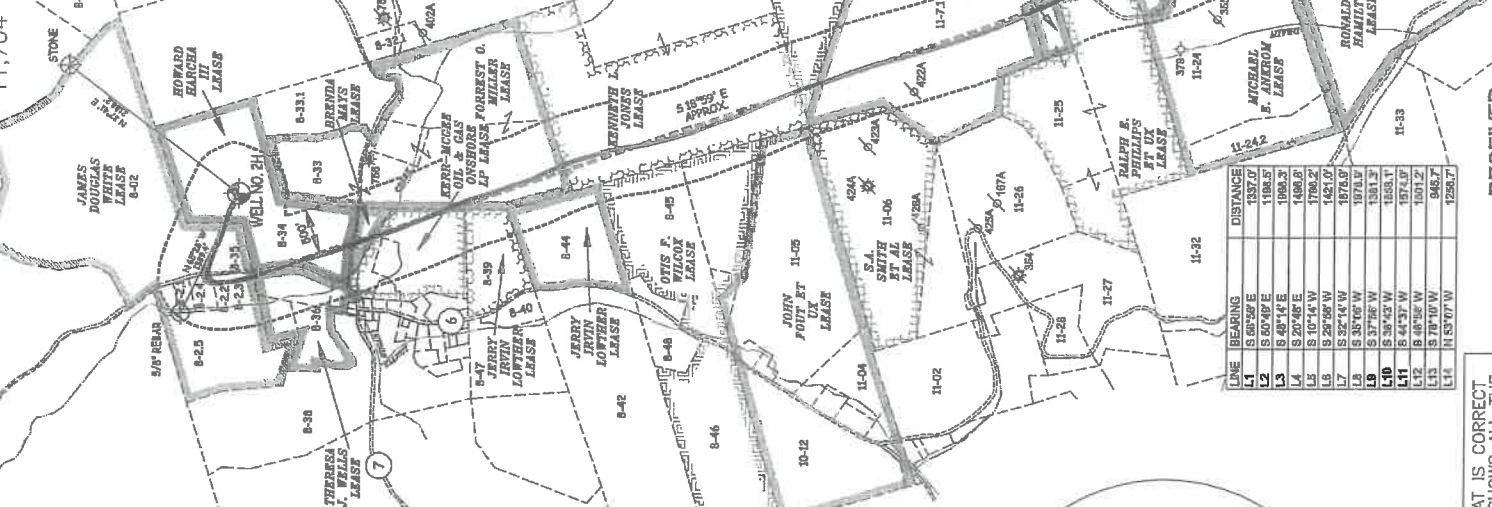
LONGITUDE 80°55'00"

15,095'

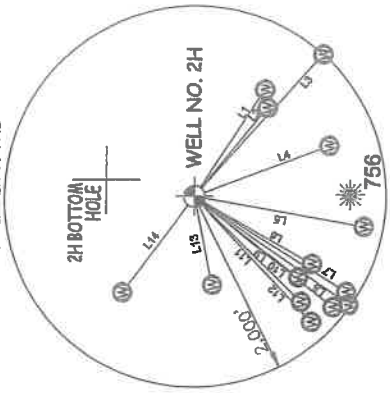
11,459' TO BOTTOM HOLE

LONGITUDE 80°57'30"

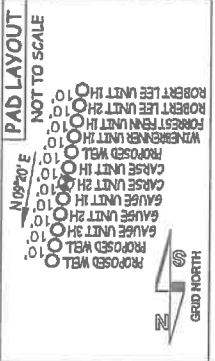
B-02	Charles Hester	390/193	103.89 AC
B-21	Allan Moore	490/217	1,272 AC
B-22	Andrew Weatherford	384/313	1,58 AC
B-23	Wesley Smith	590/27	1.81 AC
B-24	Donald Bushman	300/471	98.07 AC
B-25	Henry McAfee	347/255	22.29 AC
B-26	Henry Goodard	280/270	44.28 AC
B-27	John Williams	343/698	300 AC
B-28	John Williams	343/698	78 AC
B-29	William Bushman	314/656	78 AC
B-30	William Bushman	314/656	4 AC
B-31	Tom Couch of East Creek	349/318	4 AC
B-32	Richard Brughwell	393/659	84.28 AC
B-33	Carl Baker	321/333	39 AC
B-34	Joseph Bymer	330/238	44.33 AC
B-35	Charles Moore	305/542	0.29 AC
B-36	Theresa Waller	291/234	26.10 AC
B-37	David Clark	537/399	1.1 AC
B-38	Jerry Leavitt	327/772	30.00 AC
B-39	Jerry Leavitt	260/657	3.05 AC
B-40	Larry Dornall	330/168	39 AC
B-41	Elaine Bushman	353/659	49.03 AC
B-42	Jerry Leavitt	305/194	0.67 AC
B-43	Goldens Bowman	289/674	25.48 AC
B-44	James Shiver	376/614	40.33 AC
B-45	James Shiver	340/657	16.5 AC
B-46	Robert Luma	344/384	22.16 AC
B-02	Kevin Grim	333/678	39 AC
B-04	Nomi Forrester	276/776	1.82 AC
B-05	Nomi Forrester	285/71	67.37 AC
B-06	Donald Lamont	284/781	62 AC
B-07	Michael Fitzmaurice	311/514	15.97 AC
B-08	Michael Fitzmaurice	311/514	15.97 AC
B-09	Thomas Moore	340/749	170.07 AC
B-10	Thomas Moore	330/749	16.29 AC
B-15	Haverly Inc.	190/182	93.78 AC
B-16	Earl Adkiffen	349/116	200 AC
B-17	Terry Seider	330/62	20 AC
B-18	Terry Seider	349/116	200 AC
B-19	Terry Seider	349/116	200 AC
B-20	Terry Seider	349/116	200 AC
B-201	Terry Seider	349/116	200 AC
B-21	Terry Seider	330/317	73.49 AC
B-22	Ronald Hamilton	327/783	62.88 AC
B-23	Ronald Hamilton	348/901	73.08 AC
B-24	Ronald Hamilton	261/266	64 AC
B-25	Church	343/64	19 AC
B-26	Church	312/824	17.79 AC
B-27	Edward D. Bill, Jr.	343/64	19 AC
B-28	Edward D. Bill, Jr.	343/64	19 AC
B-29	Edward D. Bill, Jr.	343/64	19 AC
B-30	Edward D. Bill, Jr.	343/64	19 AC
B-31	Edward D. Bill, Jr.	343/64	19 AC
B-32	Edward D. Bill, Jr.	343/64	19 AC
B-33	Edward D. Bill, Jr.	343/64	19 AC
B-34	Edward D. Bill, Jr.	343/64	19 AC
B-35	Edward D. Bill, Jr.	343/64	19 AC
B-36	Edward D. Bill, Jr.	343/64	19 AC
B-37	Edward D. Bill, Jr.	343/64	19 AC
B-38	Edward D. Bill, Jr.	343/64	19 AC
B-39	Edward D. Bill, Jr.	343/64	19 AC
B-40	Edward D. Bill, Jr.	343/64	19 AC
B-41	Edward D. Bill, Jr.	343/64	19 AC
B-42	Edward D. Bill, Jr.	343/64	19 AC
B-43	Edward D. Bill, Jr.	343/64	19 AC
B-44	Edward D. Bill, Jr.	343/64	19 AC
B-45	Edward D. Bill, Jr.	343/64	19 AC
B-46	Edward D. Bill, Jr.	343/64	19 AC
B-47	Edward D. Bill, Jr.	343/64	19 AC
B-48	Edward D. Bill, Jr.	343/64	19 AC
B-49	Edward D. Bill, Jr.	343/64	19 AC
B-50	Edward D. Bill, Jr.	343/64	19 AC
B-51	Edward D. Bill, Jr.	343/64	19 AC
B-52	Edward D. Bill, Jr.	343/64	19 AC
B-53	Edward D. Bill, Jr.	343/64	19 AC
B-54	Edward D. Bill, Jr.	343/64	19 AC
B-55	Edward D. Bill, Jr.	343/64	19 AC
B-56	Edward D. Bill, Jr.	343/64	19 AC
B-57	Edward D. Bill, Jr.	343/64	19 AC
B-58	Edward D. Bill, Jr.	343/64	19 AC
B-59	Edward D. Bill, Jr.	343/64	19 AC
B-60	Edward D. Bill, Jr.	343/64	19 AC
B-61	Edward D. Bill, Jr.	343/64	19 AC
B-62	Edward D. Bill, Jr.	343/64	19 AC
B-63	Edward D. Bill, Jr.	343/64	19 AC
B-64	Edward D. Bill, Jr.	343/64	19 AC
B-65	Edward D. Bill, Jr.	343/64	19 AC
B-66	Edward D. Bill, Jr.	343/64	19 AC
B-67	Edward D. Bill, Jr.	343/64	19 AC
B-68	Edward D. Bill, Jr.	343/64	19 AC
B-69	Edward D. Bill, Jr.	343/64	19 AC
B-70	Edward D. Bill, Jr.	343/64	19 AC
B-71	Edward D. Bill, Jr.	343/64	19 AC
B-72	Edward D. Bill, Jr.	343/64	19 AC
B-73	Edward D. Bill, Jr.	343/64	19 AC
B-74	Edward D. Bill, Jr.	343/64	19 AC
B-75	Edward D. Bill, Jr.	343/64	19 AC
B-76	Edward D. Bill, Jr.	343/64	19 AC
B-77	Edward D. Bill, Jr.	343/64	19 AC
B-78	Edward D. Bill, Jr.	343/64	19 AC
B-79	Edward D. Bill, Jr.	343/64	19 AC
B-80	Edward D. Bill, Jr.	343/64	19 AC
B-81	Edward D. Bill, Jr.	343/64	19 AC
B-82	Edward D. Bill, Jr.	343/64	19 AC
B-83	Edward D. Bill, Jr.	343/64	19 AC
B-84	Edward D. Bill, Jr.	343/64	19 AC
B-85	Edward D. Bill, Jr.	343/64	19 AC
B-86	Edward D. Bill, Jr.	343/64	19 AC
B-87	Edward D. Bill, Jr.	343/64	19 AC
B-88	Edward D. Bill, Jr.	343/64	19 AC
B-89	Edward D. Bill, Jr.	343/64	19 AC
B-90	Edward D. Bill, Jr.	343/64	19 AC
B-91	Edward D. Bill, Jr.	343/64	19 AC
B-92	Edward D. Bill, Jr.	343/64	19 AC
B-93	Edward D. Bill, Jr.	343/64	19 AC
B-94	Edward D. Bill, Jr.	343/64	19 AC
B-95	Edward D. Bill, Jr.	343/64	19 AC
B-96	Edward D. Bill, Jr.	343/64	19 AC
B-97	Edward D. Bill, Jr.	343/64	19 AC
B-98	Edward D. Bill, Jr.	343/64	19 AC
B-99	Edward D. Bill, Jr.	343/64	19 AC
B-100	Edward D. Bill, Jr.	343/64	19 AC



LINE	BEARING	DISTANCE
L1	S 65°59' E	137.0'
L2	S 60°42' E	1184.5'
L3	S 48°14' E	1004.3'
L4	S 20°48' E	1488.6'
L5	S 10°14' W	1784.2'
L6	S 29°59' W	1421.0'
L7	S 32°14' W	1974.9'
L8	S 35°06' W	1974.9'
L9	S 37°05' W	1581.3'
L10	S 39°42' W	1581.3'
L11	S 44°37' W	1974.9'
L12	S 46°35' W	1001.2'
L13	S 78°10' W	945.7'
L14	N 15°07' W	1296.7'



14 WATER WELLS WERE LOCATED WITHIN 2000' OF CENTER OF PAD



(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
N: 4,363,050m E: 502,628m
BOTTOM HOLE INFORMATION:
N: 4,359,534m E: 503,625m

AS DRILLED DATA:
WELL 2H TOP HOLE INFORMATION:
N: 337,346ft E: 1,584,810ft
LAT: 39°25'00.81" LON: 80°58'10.71"
BOTTOM HOLE INFORMATION:
N: 325,753ft E: 1,587,889ft
LAT: 39°23'06.74" LON: 80°57'29.07"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIANGLE GEOMX SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

Antero Resources Corporation
Well No. Carse Unit 2H

RECEIVED
Office of Oil and Gas
AUG 31 2020
WV 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 # 17-022WA
DRAWING # CARSE2HAD
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 +/-
O - - - - - Interior Surface Tracts +/-
O - - - - - Proposed Well Path
O - - - - - As Drilled Well Path

THOMAS SUMMERS P.S. 2109
DATE 03/09/20
OPERATOR'S WELL # CARSE UNIT #2H

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION X STORAGE X DEEP X SHALLOW X
LOCATION: ELEVATION 986' - AS BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK DISTRICT MEADE COUNTY TYLER ACREAGE 44.33 ACRES +/-
SURFACE OWNER JOSEPH R. RYMER JR.
OIL & GAS ROYALTY OWNER HOWARD HARCHA III, JAMES D. WHITE, THERESA J. WELLS, BRENDA WAYS, LEASE ACREAGE 44.33 AC +/- 134.53 AC +/- 17.5 AC +/- 3.27 AC +/-
KERR-MCGEE OIL & GAS ONSHORE LP; FORREST MILLER; KENNETH JONES; CARL JACK WILCOX; ALLEN SMITH; EDWARD D. BILL JR.; 23.97 AC +/- 84.88 AC +/- 86.5 AC +/- 129.86 AC +/- 148.18 AC +/- 6.5 AC +/-
RALPH PHILLIPS ET UX; JOEL YVON FAMILY PRESERVATION TRUST; JOEL YVON FAMILY PRESERVATION TRUST; JOEL YVON FAMILY PRESERVATION TRUST
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
TARGET FORMATION MARCELLUS
WELL OPERATOR ANTERO RESOURCES CORP. ESTIMATED DEPTH 6,307' TVD 18,631' MD
ADDRESS 1615 WYNKOOP ST. DESIGNATED AGENT DIANNA STAMPER-CT CORPORATION SYSTEM
FORM WW-6 DENVER, CO 80202 ADDRESS CHARLESTON, WV 25313

- 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 ANIMALS LOCATED WITHIN SIX HUNDRED TWENTY-TWO (622) FEET OF THE CENTER OF WELL NO. 2H TOP HOLE. DATA SHOWN HEREON WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
- AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
- 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.
- WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INCONGRUENCIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.