

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

RECEIVED
Office of Oil and Gas

OCT 25 2018

WV Department of
Environmental Protection

API 47 - 095 - 02414 County Tyler District Centerville
Quad Middlebourne 7.5' Shirley 7.5' Pad Name Dawson Pad Field/Pool Name -----
Farm name Gary D. Dawson et ux Well Number Pierson 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 4359051m Easting 510871m
Landing Point of Curve Northing 4358839.31m Easting 510332.42m
Bottom Hole Northing 4361527m Easting 509378m

Elevation (ft) 1009' 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 5/8/2017 Date drilling commenced 6/30/2017 Date drilling ceased 12/20/2017
Date completion activities began 3/20/2018 Date completion activities ceased 9/5/2018
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 N/A Open mine(s) (Y/N) depths No
Salt water depth(s) ft N/A 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

Reviewed by:
C/CB
9/5/2018

API 47- 095 - 02414 Farm name Gary D. Dawson et ux Well number Pierson 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"	582'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2618'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16911'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7045'		4.7#, N-80		
Packer type and depth set		N/A		RECEIVED Office of Oil and Gas			

Comment Details _____ pc 25 2018

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	WV Department of Environmental Protection	
						Cement Top (MD)	Setting Time (hrs)
Conductor	Class A	204 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	475 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	910 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	745 sx (Lead) 1500 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.45 (Lead), 1.94 (Tail)		-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16931' MD, 6442' TVD (BHL), 6483' (Deepest Point Drilled) Loggers TD (ft) 16931' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5899'

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

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Conductor - 0
 Surface - 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface
 Intermediate - 1 above float joint, 1 above float collar, 1 every 4th joint to surface
 Production - 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

API 47- 095 - 02414 Farm name Gary D. Dawson et ux Well number Pierson Unit 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					

RECEIVED
Office of Oil and Gas

Please insert additional pages as applicable.

Oct 25 2018

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

WV Department of
Environmental Protection

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.

API 47- 095 - 02414 Farm name Gary D. Dawson et ux Well number Pierson Unit 2H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6456' (TOP)</u> TVD	<u>7171' (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 13375 mcfpd Oil 191 bpd NGL --- bpd Water 507 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	

***PLEASE SEE ATTACHED EXHIBIT 3**

					RECEIVED
					Office of Oil and Gas
					OCT 25 2018
					WV Department of
					Environmental Protection

Please insert additional pages as applicable.

Drilling Contractor Patterson - UTI Drilling Company LLC
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company Allied Horizontal Wireline Services
Address 381 Colonial Manor Road City North Huntington State PA Zip 15642

Cementing Company BJ Services
Address 1036 East Main Street City Bridgeport State WV Zip 26330

Stimulating Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223
Signature  Title Permitting Agent Date 10/4/2018

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

API 47-095-02414 Farm Name Gary D. Dawson Well Number Pierson Unit 2H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	4/22/2018	16720		60	Marcellus
2	4/22/2018	16522	16689	60	Marcellus
3	4/23/2018	16323	16491	60	Marcellus
4	4/23/2018	16125	16292	60	Marcellus
5	4/24/2018	15926	16094	60	Marcellus
6	4/24/2018	15728	15895	60	Marcellus
7	4/25/2018	15529	15697	60	Marcellus
8	4/25/2018	15331	15498	60	Marcellus
9	4/26/2018	15132	15300	60	Marcellus
10	4/26/2018	14934	15101	60	Marcellus
11	4/27/2017	14735	14903	60	Marcellus
12	4/27/2018	14537	14704	60	Marcellus
13	4/27/2018	14338	14505	60	Marcellus
14	4/28/2018	14139	14307	60	Marcellus
15	4/28/2018	13941	14108	60	Marcellus
16	4/29/2018	13742	13910	60	Marcellus
17	4/29/2018	13544	13711	60	Marcellus
18	4/29/2018	13345	13513	60	Marcellus
19	4/30/2018	13147	13314	60	Marcellus
20	4/30/2018	12948	13116	60	Marcellus
21	5/1/2018	12750	12917	60	Marcellus
22	5/1/2018	12551	12719	60	Marcellus
23	5/2/2018	12353	12520	60	Marcellus
24	5/3/2018	12154	12322	60	Marcellus
25	5/3/2018	11956	12123	60	Marcellus
26	5/3/2018	11757	11924	60	Marcellus
27	5/4/2018	11559	11726	60	Marcellus
28	5/4/2018	11360	11527	60	Marcellus
29	5/5/2018	11161	11329	60	Marcellus
30	5/5/2018	10963	11130	60	Marcellus
31	5/5/2018	10764	10932	60	Marcellus
32	5/6/2018	10566	10733	60	Marcellus
33	5/6/2018	10367	10535	60	Marcellus
34	5/6/2018	10169	10336	60	Marcellus
35	5/6/2018	9970	10138	60	Marcellus
36	5/7/2018	9772	9939	60	Marcellus
37	5/7/2018	9573	9741	60	Marcellus
38	5/7/2018	9375	9542	60	Marcellus
39	5/7/2018	9176	9344	60	Marcellus
40	5/8/2018	8978	9145	60	Marcellus
41	5/8/2018	8779	8946	60	Marcellus
42	5/8/2018	8581	8748	60	Marcellus
43	5/9/2018	8382	8549	60	Marcellus
44	5/9/2018	8183	8351	60	Marcellus
45	5/9/2018	7985	8152	60	Marcellus
46	5/9/2018	7786	7954	60	Marcellus
47	5/9/2018	7588	7755	60	Marcellus
48	5/10/2018	7389	7557	60	Marcellus
49	5/10/2018	7191	7358	60	Marcellus

RECEIVED
Office of Oil and Gas

OCT 25 2018

WV Department of
Environmental Protection

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	4/22/2018	36.6	7875	6642	4438	18955	3546	N/A
2	4/22/2018	65.6	7046	5260	3671	15977	10897	N/A
3	4/23/2018	71.9	7228	5479	3904	16611	8678	N/A
4	4/23/2018	76.2	7453	5728	3823	17004	8892	N/A
5	4/24/2018	75.3	7393	5918	3730	17041	8670	N/A
6	4/24/2018	73.9	7378	6114	3719	17211	8570	N/A
7	4/25/2018	76.7	7377	6216	4057	17650	8649	N/A
8	4/25/2018	80.2	7706	6153	3746	17605	8836	N/A
9	4/26/2018	79.7	7480	5721	4002	17203	8466	N/A
10	4/26/2018	78.8	7502	6788	3786	18076	8567	N/A
11	4/27/2017	79	7413	6391	3975	17779	8413	N/A
12	4/27/2018	80.6	7482	6116	4177	17775	8396	N/A
13	4/27/2018	80.6	7482	6116	4177	17775	8396	N/A
14	4/28/2018	79.7	7400	5945	3934	17279	8474	N/A
15	4/28/2018	80.9	7467	6466	4007	17940	8376	N/A
16	4/29/2018	80	7518	6408	4092	18018	8284	N/A
17	4/29/2018	80.6	7535	6374	3992	17901	8299	N/A
18	4/29/2018	80	7691	6613	3890	18194	8365	N/A
19	4/30/2018	77	7101	6230	4002	17333	8267	N/A
20	4/30/2018	80.2	7102	6317	3867	17286	8401	N/A
21	5/1/2018	78.9	6866	6091	3820	16777	8313	N/A
22	5/1/2018	80.9	7220	5589	3845	16654	8334	N/A
23	5/2/2018	70.5	6858	6561	5005	18424	13054	N/A
24	5/3/2018	80.8	6956	6477	3912	17345	8385	N/A
25	5/3/2018	78.7	6736	6723	4229	17688	8335	N/A
26	5/3/2018	68.6	7428	6360	4191	17979	13755	N/A
27	5/4/2018	77.5	6940	6291	4265	17496	8468	N/A
28	5/4/2018	75.7	7178	6448	3912	17538	8420	N/A
29	5/5/2018	77.6	6959	5610	3860	16429	8508	N/A
30	5/5/2018	79.1	6966	5864	4338	17168	8408	N/A
31	5/5/2018	79.9	7411	6234	3762	17407	9170	N/A
32	5/6/2018	78.6	6809	5672	4536	17017	8543	N/A
33	5/6/2018	78.9	6933	6244	4289	17466	8520	N/A
34	5/6/2018	78.6	6739	5441	3890	16070	8111	N/A
35	5/6/2018	78	7133	6148	4094	17375	8577	N/A
36	5/7/2018	79.1	6835	6383	4044	17262	9569	N/A
37	5/7/2018	78.6	6915	6255	4302	17472	8496	N/A
38	5/7/2018	78.2	7192	6527	3963	17682	8628	N/A
39	5/7/2018	80.4	6922	5667	4106	16695	8419	N/A
40	5/8/2018	78.8	6470	5853	3915	16238	8360	N/A
41	5/8/2018	79.2	6393	5165	4007	15565	8321	N/A
42	5/8/2018	80	6486	5145	3934	15565	8470	N/A
43	5/9/2018	79.4	6608	5450	4129	16187	8420	N/A
44	5/9/2018	80.5	6661	5573	3850	16084	8862	N/A
45	5/9/2018	80.5	6447	6200	3767	16414	8421	N/A
46	5/9/2018	80.8	6349	6279	4001	16629	9086	N/A
47	5/9/2018	80.3	6620	5734	4044	16398	9017	N/A
48	5/10/2018	80.3	6506	6403	4849	17758	8573	N/A
49	5/10/2018	78.3	6245	6428	3833	16506	8542	N/A
	AVG=	77.4	7,070	6,078	4,034	841,901	425,527	TOTAL

RECEIVED
Office of Oil and Gas

OC 25 2018

WV Department of
Environmental Protection

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Fresh Water	227'	N/A	227'	N/A
Sandstone	0	N/A	0	N/A
Silty Sandstone	300	N/A	300	N/A
Sandy Siltstone	440	N/A	440	N/A
Sandstone	600	N/A	600	N/A
Sandy Marlstone	700	N/A	700	N/A
Calcareous Sandstone	880	N/A	880	N/A
Silty Marlstone	1,070	N/A	1,070	N/A
Sandstone w/interbedded coal	1,280	N/A	1,280	N/A
Sandstone w/trace coal	1,440	N/A	1,440	N/A
Calcareous Shale	1,590	N/A	1,590	N/A
Coal/Shale	1,650	N/A	1,650	N/A
Calcareous Shale	1,670	N/A	1,670	N/A
Calcareous Sandstone	1,840	N/A	1,840	N/A
Big Lime	1,915	N/A	1,941	N/A
Big Injun	2,034	N/A	2,066	N/A
Gantz Sand	2,567	N/A	2,621	N/A
Fifty Foot Sandstone	2,682	N/A	2,740	N/A
Gordon	2,796	N/A	2,860	N/A
Fifth Sandstone	3,000	N/A	3,080	N/A
Bayard	3,149	N/A	3,245	N/A
Warren	3,462	N/A	3,600	N/A
Speechley	3,841	N/A	4,020	N/A
Balltown	4,228	N/A	4,455	N/A
Bradford	4,526	N/A	4,788	N/A
Benson	4,776	N/A	5,064	N/A
Alexander	5,179	N/A	5,510	N/A
Rhinestreet	5,777	N/A	6,168	N/A
Sycamore	6,116	N/A	6,550	N/A
Middlesex	6,276	N/A	6,772	N/A
Burkett	6,391	N/A	6,989	N/A
Tully	6,426	N/A	7,070	N/A
Marcellus	6,456	N/A	7,171	N/A

*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.

RECEIVED
Office of Oil and Gas
NOV 25 2018
WV Department of
Environmental Protection

ANTERO RESOURCES CORPORATION

Location: Tyler County, WV
 Facility: Dawson Pad
 Slot: Slot #02
 Well: Pierson Unit 2H
 Wellbore: Pierson Unit 2H PWB

Plot reference wellpath is Pierson Unit 2H PWB Rev-A.0
 True vertical depths are referenced to Pierson 342 (RKB)
 Measured depths are referenced to Pierson 342 (RKB)
 Pierson 342 (RKB) to Mean Sea Level: 1035 feet
 Mean Sea Level to Ground level (At Slot: Slot #02): -1010 feet
 Coordinates are in feet referenced to Slot
 Grid System: NAD27/UTM Zone 17 North, US feet
 North Reference: Grid north
 Scale: True distance
 Depths are in feet
 Created by: mcrsch on 2018-05-07
 Database: WA_MPL_EASTERLUS_Dein

Location Information

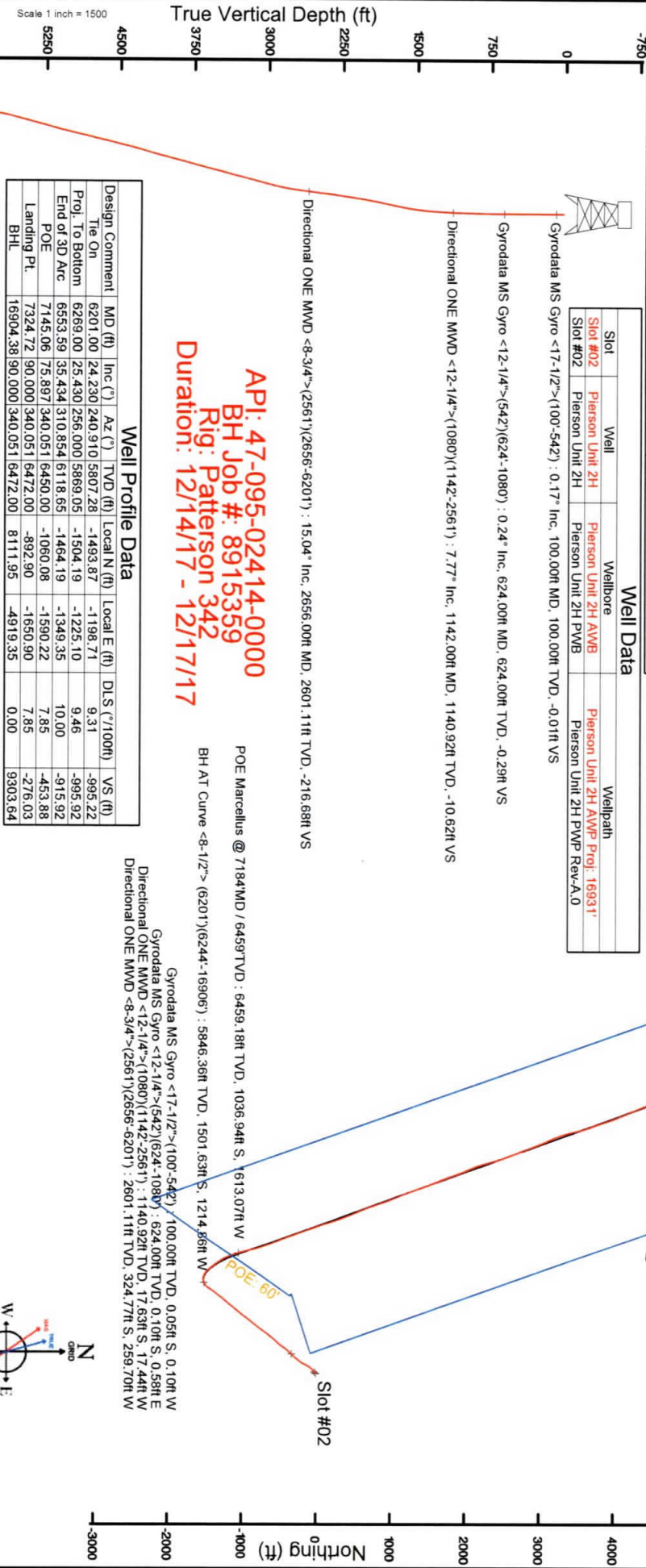
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Dawson Pad	1676049.728	14300592.517	39°22'50.710"N	80°52'26.030"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #02	13.14	-14.15	1676035.580	14300605.650
Comment	Pierson Unit 2H			
Pierson 342 (RKB) to Ground level (At Slot: Slot #02)	25ft			
Mean Sea Level to Ground level (At Slot: Slot #02)	-1010ft			
Pierson 342 (RKB) to Mean Sea Level	1035ft			

Well Data

Slot	Well	Wellbore	Wellpath
Slot #02	Pierson Unit 2H	Pierson Unit 2H PWB	Pierson Unit 2H AWP Proj: 16931'
Slot #02	Pierson Unit 2H	Pierson Unit 2H PWB	Pierson Unit 2H PWB Rev-A.0



RECEIVED
 Office of Oil and Gas
 OCT 25 2018
 WV Department of
 Environmental Protection



API: 47-095-02414-0000
BH Job #: 8915359
Rig: Patterson 342
Duration: 12/14/17 - 12/17/17

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	D.S. (°/100ft)	VS (ft)
The On	6201.00	24.230	240.910	5807.28	-1493.87	-1198.71	9.31	-995.22
ProL To Bottom	6269.00	25.430	256.000	5869.05	-1504.19	-1225.10	9.46	-995.92
End of 3D Arc	6553.59	35.434	310.854	6118.65	-1464.19	-1346.35	10.00	-915.92
POE	7145.06	75.897	340.051	6450.00	-1060.08	-1590.22	7.85	-453.88
Landing Pt.	7324.72	90.000	340.051	6472.00	-892.90	-1650.90	7.85	-276.03
BHL	16904.38	90.000	340.051	6472.00	8111.95	-4919.35	0.00	9303.64

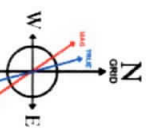
BH AT Curve <-8.1/2>(6201)(6244-16906): 25.09° Inc. 6244.00ft MD. 5846.36ft TVD. -997.01ft VS

Projection to Bit @ 16931M/D / 6442TVD: 90.49° Inc. 16931.00ft MD. 6442.04ft TVD. 9312.48ft VS

POE Marcellus @ 7184M/D / 6459TVD: 77.1° Inc. 7184.00ft MD. 6459.18ft TVD. -424.33ft VS

Vertical Section (ft)

Azimuth 340.05° with reference 0.00 N, 0.00 E



User specified Dip: 66.62° Field: 51994 nT
 Magnetic North is 7.62 degrees West of True North (at 12/12/2017)
 Grid North is 0.08 degrees East of True North
 To correct azimuth from True to Grid subtract 0.08 degrees
 To correct azimuth from Magnetic to Grid subtract 7.70 degrees

Scale 1 inch = 1500

Scale 1 inch = 1500

Scale 1 inch = 2000

Scale 1 inch = 1500

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/22/2018
Job End Date:	5/10/2018
State:	West Virginia
County:	Tyler
API Number:	47-095-02414-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Pierson Unit 2H
Latitude:	39.38083000
Longitude:	-80.87373000
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,443
Total Base Water Volume (gal):	18,467,362
Total Base Non Water Volume:	0



RECEIVED
Office of Oil and Gas

OC 25 2018



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
Water	Supplied by Operator	Base Fluid					
			Water	7732-18-5	70.00000	88.52452	
SANIFRAC 8844	CWS	Biocide					
				Listed Below			

WV Department of Environmental Protection

Sand (Proppant)	CWS	Propping Agent							
Hydrochloric Acid	CWS	Clean Perforations							
DAP-103	CWS	Iron Control							
DWP-641	CWS	Friction Reducer							
CI-9100G	CWS	Corrosion Inhibitor							
DAP-902	CWS	Scale Inhibitor							
DWP-111	CWS	Gel Slurry							
Calbreak 5501	CWS	Breaker							
Other Chemical (s)	Listed Above	See Trade Name (s) List							

RECEIVED
Office of Oil and Gas
007 25 2018
WV Department of Environmental Protection

				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	11.13096
				Calcite	471-34-1	1.00000	0.08268
				Hydrochloric acid	7647-01-0	37.00000	0.06052
				Illite	12173-60-3	1.00000	0.02861
				Polymer	26100-47-0	45.00000	0.02824
				Guar gum	9000-30-0	60.00000	0.02445
				Distillates (petroleum), hydrotreated middle	64742-46-7	60.00000	0.02445
				Distillates (petroleum), hydrotreated light	64742-47-8	30.00000	0.01883
				Apatite	64476-38-6	0.10000	0.01113
				Biotite	1302-27-8	0.10000	0.01113
				Goethite	1310-14-1	0.10000	0.01113
				Ammonium chloride	12125-02-9	11.00000	0.00690
				Ammonium Persulfate	64742-47-8	100.00000	0.00644
				Polyethylene glycol mixture	25322-68-3	54.50000	0.00628
				2-Propenoic acid, homopolymer, sodium salt	9003-04-7	40.00000	0.00627
				Ilmenite	98072-94-7	0.10000	0.00286
				Sorbitan monooleate	1338-43-8	4.00000	0.00251
				2,2-Dibromo-3-Nitriopropanamide	10222-01-2	20.00000	0.00231
				Quaternary ammonium compounds, bis (hydrogenated tallow alkyl)dimethyl, salts with bentonite	68953-58-2	5.00000	0.00204
				Polyethylene glycol monooleate	9004-96-0	3.00000	0.00188
				1,2-Propanediol	57-55-6	10.00000	0.00157
				Sorbitol tetraoleate	61723-83-9	2.00000	0.00126

RECEIVED
Office of Oil and Gas
OCT 25 2018
WV Department of
Environmental Protection

					61791-26-2	1.00000	0.00063	
				Amines, tallow alkyl, ethoxylated				
				Oxirane, 2-methyl-, polymer with oxirane, monodecyl ether	37251-67-5	1.50000	0.00061	
				Citric acid	77-92-9	60.00000	0.00055	
				Sodium bromide	7647-15-6	4.00000	0.00046	
				Dibromoacetonitrile	3252-43-5	3.00000	0.00035	
				Alkyloxypolyethyleneoxy ethanol	84133-50-6	0.50000	0.00031	
				Acrylamide	79-06-1	0.10000	0.00006	
				Ethylene glycol	107-21-1	40.00000	0.00003	
				Diethylene glycol (mono) methyl ether	34590-94-8	20.00000	0.00002	
				Cinnamaldehyde	104-55-2	10.00000	0.00001	
				Ethoxylated alcohols	Proprietary	10.00000	0.00001	Proprietary CAS
				Diethylene glycol	111-46-6	1.00000	0.00001	
				Formic Acid	64-18-6	10.00000	0.00001	
				Isopropanol	67-63-0	5.00000	0.00001	

* 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)

RECEIVED
Office of Oil and Gas
OCT 25 2018
WV Department of
Environmental Protection

LATITUDE 39°25'00"

11,481'

4,592' TO BOTTOM HOLE

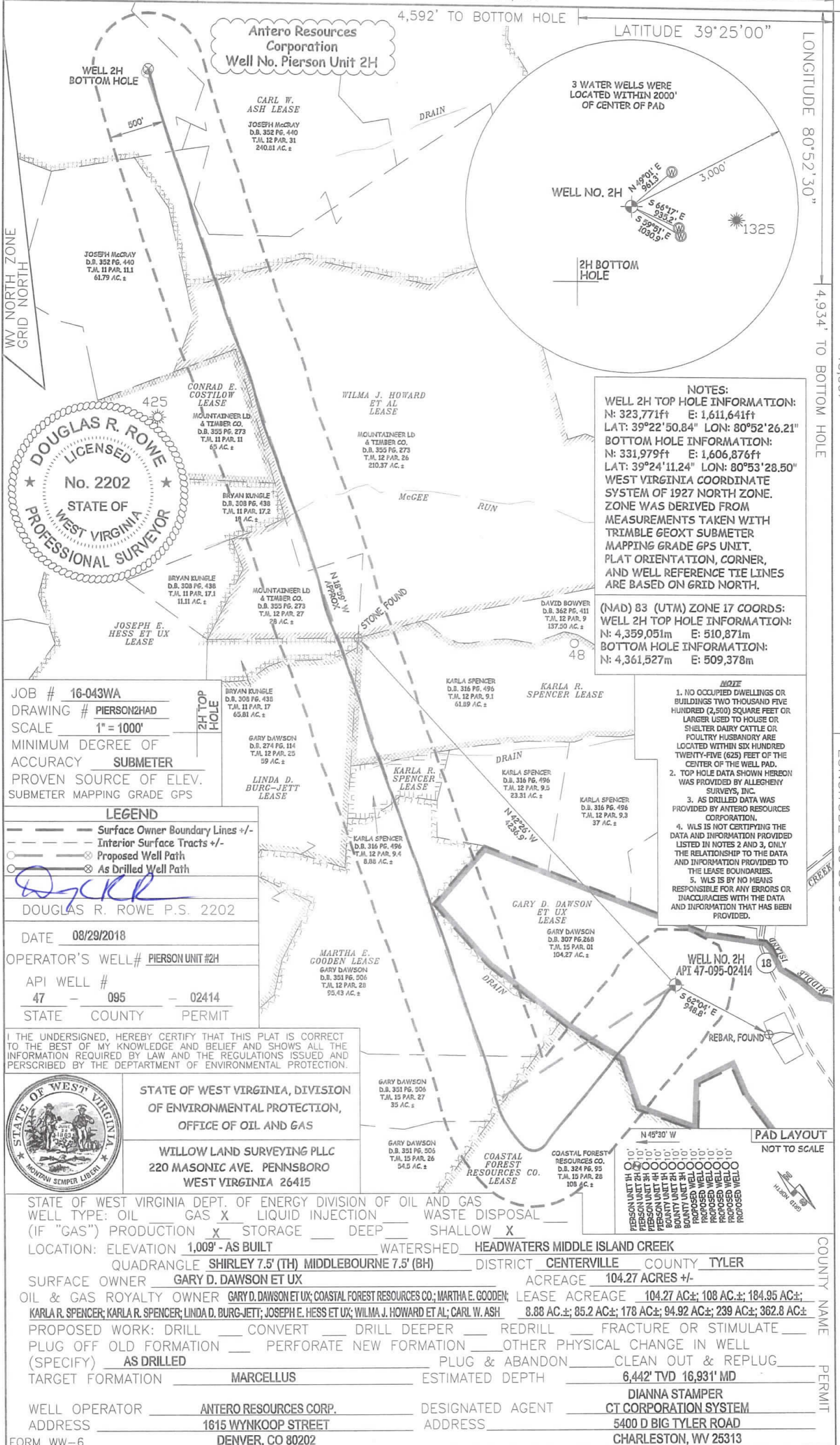
LATITUDE 39°25'00"

LONGITUDE 80°52'30"

4,934' TO BOTTOM HOLE

13,067'

LONGITUDE 80°50'00"



NOTES:
WELL 2H TOP HOLE INFORMATION:
 N: 323,771ft E: 1,611,641ft
 LAT: 39°22'50.84" LON: 80°52'26.21"
BOTTOM HOLE INFORMATION:
 N: 331,979ft E: 1,606,876ft
 LAT: 39°24'11.24" LON: 80°53'28.50"
 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: 4,359,051m E: 510,871m
BOTTOM HOLE INFORMATION:
 N: 4,361,527m E: 509,378m

- 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 ALLEGHENY SURVEYS, INC.
 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.

JOB # 16-043WA
 DRAWING # PIERSON2HAD
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

DOUGLAS R. ROWE P.S. 2202
 DATE 08/29/2018
 OPERATOR'S WELL# PIERSON UNIT #2H
 API WELL # 47 - 095 - 02414
 STATE COUNTY PERMIT

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 REGULATIONS 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

STATE OF WEST VIRGINIA DEPT. OF ENERGY DIVISION OF OIL AND GAS
 WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 1,009' - AS BUILT WATERSHED HEADWATERS MIDDLE ISLAND CREEK
 QUADRANGLE SHIRLEY 7.5' (TH) MIDDLEBOURNE 7.5' (BH) DISTRICT CENTERVILLE COUNTY TYLER
 SURFACE OWNER GARY D. DAWSON ET UX ACREAGE 104.27 ACRES +/-
 OIL & GAS ROYALTY OWNER GARY D. DAWSON ET UX; COASTAL FOREST RESOURCES CO.; MARTHA E. GOODEN; LEASE ACREAGE 104.27 AC±; 108 AC±; 184.95 AC±;
 KARLA R. SPENCER; KARLA R. SPENCER; LINDA D. BURG-JETT; JOSEPH E. HESS ET UX; WILMA J. HOWARD ET AL; CARL W. ASH 8.88 AC±; 85.2 AC±; 178 AC±; 94.92 AC±; 239 AC±; 362.8 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 6,442' TVD 16,931' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER
 ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
 FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313