

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

API 47-017-06822 County Doddridge District West Union
Quad West Union 7.5' Pad Name Middle Pad Field/Pool Name -----
Farm name Antero Resources Corporation Well Number Jay Unit 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4352586.486m Easting 516696.266m
Landing Point of Curve Northing 4352781.63m Easting 516963.88m
Bottom Hole Northing 4355545.844m Easting 515755.307m

Elevation (ft) 843' 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 6/19/2017 Date drilling commenced 9/29/2017 Date drilling ceased 3/10/2018
Date completion activities began 6/12/2018 Date completion activities ceased 9/11/2018
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 None Identified Open mine(s) (Y/N) depths No
Salt water depth(s) ft None Identified 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:

Reviewed
Julian 2/27/19

API 47- 017 - 06822 Farm name Antero Resources Corporation Well number Jay Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	24"	20"	112'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	548'	New	54#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2628'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	16943'	New	23#, HCP-110	N/A	Y
Tubing		2-3/8"	6654'		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	1.18	241	0'	8 Hrs.
Surface	Class A	445 sx	15.6	1.21	538	0'	8 Hrs.
Coal							
Intermediate 1	Class A	870 sx	15.6	1.22	1061	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	655 sx (Lead) 1626 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.53 (Lead), 1.83 (Tail)	3978	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16943' MD, 6420' TVD (BHL), 6440' (Deepest Point Drilled) Loggers TD (ft) 16943' MD

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 5798'

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 RECEIVED Office of Oil and Gas

Conductor - 0 JAN 24 2019

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 WV Department of Environmental Protection

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

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	6/12/2018	16668	16840	60	Marcellus
2	6/12/2018	16469.838	16636.973	60	Marcellus
3	6/12/2018	16271.676	16438.811	60	Marcellus
4	6/13/2018	16073.514	16240.649	60	Marcellus
5	6/14/2018	15875.352	16042.487	60	Marcellus
6	6/14/2018	15677.19	15844.325	60	Marcellus
7	6/14/2018	15479.028	15646.163	60	Marcellus
8	6/15/2018	15280.866	15448.001	60	Marcellus
9	6/15/2018	15082.704	15249.839	60	Marcellus
10	6/15/2018	14884.542	15051.677	60	Marcellus
11	6/16/2018	14686.38	14853.515	60	Marcellus
12	6/16/2018	14488.218	14655.353	60	Marcellus
13	6/16/2018	14290.056	14457.191	60	Marcellus
14	6/17/2018	14091.894	14259.029	60	Marcellus
15	6/17/2018	13893.732	14060.867	60	Marcellus
16	6/17/2018	13695.57	13862.705	60	Marcellus
17	6/17/2018	13497.408	13664.543	60	Marcellus
18	6/18/2018	13299.246	13466.381	60	Marcellus
19	6/19/2018	13101.084	13268.219	60	Marcellus
20	6/20/2018	12902.922	13070.057	60	Marcellus
21	6/21/2018	12704.76	12871.895	60	Marcellus
22	6/21/2018	12506.598	12673.733	60	Marcellus
23	6/22/2018	12308.436	12475.571	60	Marcellus
24	6/22/2018	12110.274	12277.409	60	Marcellus
25	6/23/2018	11912.112	12079.247	60	Marcellus
26	6/23/2018	11713.95	11881.085	60	Marcellus
27	6/24/2018	11515.788	11682.923	60	Marcellus
28	6/24/2018	11317.626	11484.761	60	Marcellus
29	6/25/2018	11119.464	11286.599	60	Marcellus
30	6/28/2018	10921.302	11088.437	60	Marcellus
31	7/5/2018	10723.14	10890.275	60	Marcellus
32	7/6/2018	10524.978	10692.113	60	Marcellus
33	7/6/2018	10326.816	10493.951	60	Marcellus
34	7/6/2018	10128.654	10295.789	60	Marcellus
35	7/7/2018	9930.492	10097.627	60	Marcellus
36	7/7/2018	9732.33	9899.465	60	Marcellus
37	7/7/2018	9534.168	9701.303	60	Marcellus
38	7/7/2018	9336.006	9503.141	60	Marcellus
39	7/9/2018	9137.844	9304.979	60	Marcellus
40	7/9/2018	8939.682	9106.817	60	Marcellus
41	7/9/2018	8741.52	8908.655	60	Marcellus
42	7/10/2018	8543.358	8710.493	60	Marcellus
43	7/10/2018	8345.196	8512.331	60	Marcellus
44	7/10/2018	8147.034	8314.169	60	Marcellus
45	7/11/2018	7948.872	8116.007	60	Marcellus
46	7/11/2018	7750.71	7917.845	60	Marcellus
47	7/11/2018	7552.548	7719.683	60	Marcellus
48	7/11/2018	7354.386	7521.521	60	Marcellus
49	7/12/2018	7156.224	7323.359	60	Marcellus
50	7/12/2018	6958.062	7125.197	60	Marcellus
51	7/12/2018	6759.9	6927.035	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	6/12/2018	52.91	7940	5617	5069	401560	14273.62	N/A
2	6/12/2018	73.6	8075	4931	4034	403420	9828.976	N/A
3	6/12/2018	71.92	8202	5384	4434	400740	8854.833	N/A
4	6/13/2018	73.4	7792	5211	4746	397840	8265.095	N/A
5	6/14/2018	56.835	8129.5	5653.5	5050.5	399680	15965.6	N/A
6	6/14/2018	64.6	8118	5043	4523	402840	11153.38	N/A
7	6/14/2018	72.38	8220	5802	4592	390540	8231.524	N/A
8	6/15/2018	73.56	8164	5573	4313	400800	8433.119	N/A
9	6/15/2018	72.6	8070	5505	4697	399880	9633.952	N/A
10	6/15/2018	70.44	8074	5877	4485	398820	8440.952	N/A
11	6/16/2018	69.48	7021	5009	3912	396960	8233.452	N/A
12	6/16/2018	67.24	8020	5741	4821	402100	8829.5	N/A
13	6/16/2018	68.08	8072	5451	3966	392500	8652.905	N/A
14	6/17/2018	76.87	7995	5548	3933	392520	8171.643	N/A
15	6/17/2018	72.66	7902	5518	4791	402740	8457.31	N/A
16	6/17/2018	69.31	7931	5445	4481	401640	9029.119	N/A
17	6/17/2018	70.52	7431	4953	4901	398600	8172.31	N/A
18	6/18/2018	72.57	7408	5242	4551	393180	7954.357	N/A
19	6/19/2018	72.7	7789	4983	4552	401720	8462.381	N/A
20	6/20/2018	50.7	8251	5677	4360	404700	10357.95	N/A
21	6/21/2018	74.25	7317	5661	4883	401960	8246.595	N/A
22	6/21/2018	70.65	7281	5334	5237	392760	8283.429	N/A
23	6/22/2018	65.14	7519	5633	5111	396820	10742.81	N/A
24	6/22/2018	77.57	7684	6081	5049	402540	8339.833	N/A
25	6/23/2018	70.8	7836	5908	5127	400460	8325.048	N/A
26	6/23/2018	67.82	7935	5734	4926	412920	8369.762	N/A
27	6/24/2018	76.82	7864	5540	5047	399160	8105.143	N/A
28	6/24/2018	69.56	7321	5685	3304	407240	8334.024	N/A
29	6/25/2018	67.26	7444	6077	4918	409040	8512.048	N/A
30	6/28/2018	63.33	8214	5532	8965	380070	9041.452	N/A
31	7/5/2018	76.31	7416	5445	5591	402540	8138.857	N/A
32	7/6/2018	75.63	7172	5770	4371	396280	8159.976	N/A
33	7/6/2018	76.95	6946	6114	5242	394900	7948.119	N/A
34	7/6/2018	77.6	6891	5899	4694	400540	8298.571	N/A
35	7/7/2018	77.8	6828	5810	3938	395760	7988.31	N/A
36	7/7/2018	76.89	6919	5771	4233	402700	8083.833	N/A
37	7/7/2018	79	6920	5476	5232	405860	8054.238	N/A
38	7/7/2018	80.1	6932	5453	5087	396620	7956.833	N/A
39	7/9/2018	74.89	6674	6084	5114	398760	8144.262	N/A
40	7/9/2018	71.19	6677	5517	5080	395540	8150.31	N/A
41	7/9/2018	74	7391	5678	5020	410030	8114.81	N/A
42	7/10/2018	78.3	6869	6357	4989	394420	7949.452	N/A
43	7/10/2018	75.72	7004	5279	3895	398540	8010.857	N/A
44	7/10/2018	77.49	6965	6053	4173	396980	8588.262	N/A
45	7/11/2018	79.21	6957	5695	3731	411080	7912.167	N/A
46	7/11/2018	74.55	7477	5899	4027	401680	10200.98	N/A
47	7/11/2018	74.16	6586	6085	5136	400420	7911.452	N/A
48	7/11/2018	78.34	6856	5694	5139	410520	7868.167	N/A
49	7/12/2018	77.99	6811	5960	4142	410840	7994.786	N/A
50	7/12/2018	74.08	6362	5838	3520	414290	7975.071	N/A
51	7/12/2018	79.09	6630	5753	3855	399060	7850.881	N/A
	AVG=	72	7,457	5,627	4,686	20,423,110	447,002	TOTAL

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Sandstone	0	177	0	177
Sandstone tr coal	est. 177	217	est. 177	217
Sandy shale	est. 217	232	est. 217	232
Calcareous Shale	est. 232	319	est. 232	319
Sandstone	est. 319	373	est. 319	373
Calcareous Shale	est. 373	1,065	est. 373	1,065
Silty Sandstone	est. 1065	1,137	est. 1065	1,137
Silty shale	est. 1137	1,287	est. 1137	1,287
Sandy Shale	est. 1287	1,357	est. 1287	1,357
Shale	est. 1357	1,560	est. 1357	1,566
Big Lime	1,560	2,216	1,566	2,243
Fifty Foot Sandstone	2,216	2,458	2,243	2,492
Gordon	2,458	2,664	2,492	2,703
Fifth Sandstone	2,664	2,729	2,703	2,771
Bayard	2,729	3,510	2,771	3,574
Speechley	3,510	3,824	3,574	3,898
Balltown	3,824	4,314	3,898	4,401
Bradford	4,314	4,745	4,401	4,843
Benson	4,745	4,996	4,843	5,100
Alexander	4,996	5,979	5,100	6,118
Sycamore	5,979	6,172	6,118	6,348
Middlesex	6,172	6,296	6,348	6,538
Burkett	6,296	6,327	6,538	6,600
Tully	6,327	6,368	6,600	6,708
Marcellus	6,368	NA	6,708	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 CORPORATION

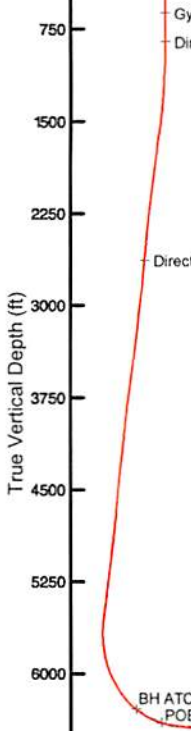
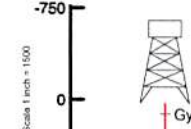
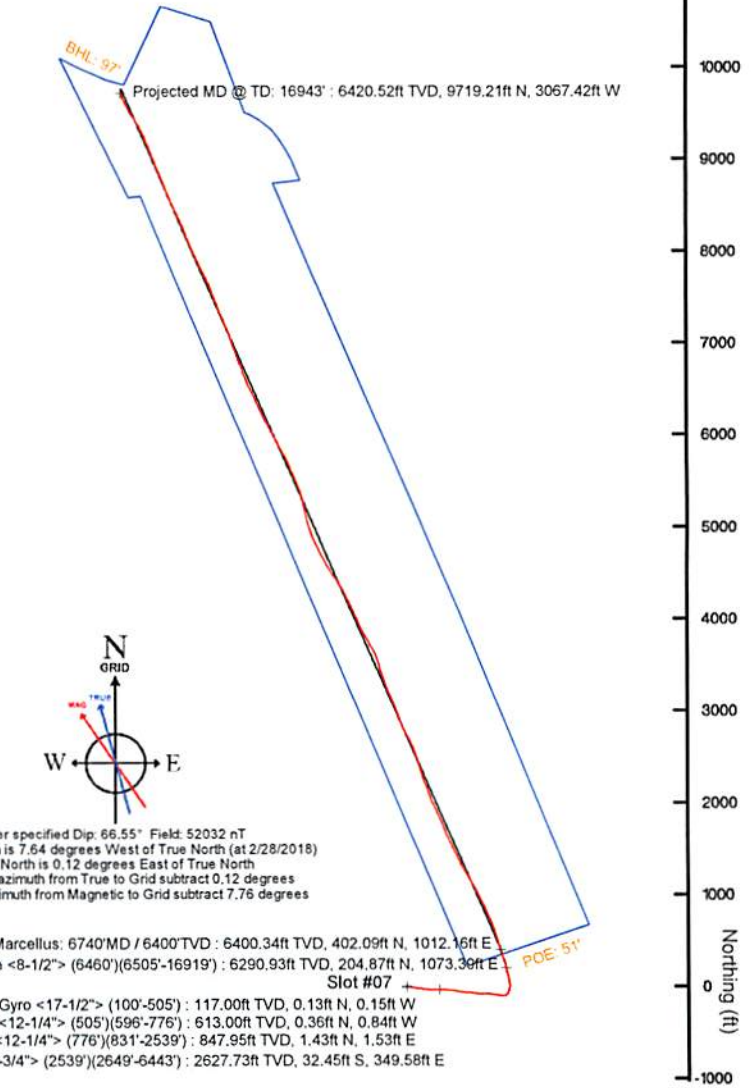
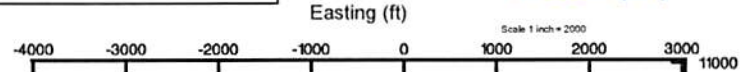
Location: Doddridge Co., WV
 Field: Doddridge
 Facility: Middle Pad

Slot: Slot #07
 Well: Jay Unit 1H
 Wellbore: Jay Unit 1H PWB



Plot reference wellpath is Jay Unit 1H PWP Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Frontier 32 (RKB)	North Reference: Grid north
Measured depths are referenced to Frontier 32 (RKB)	Scale: True distance
Frontier 32 (RKB) to Mean Sea Level: 875 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot #07): -843 feet	Created by: mcrcrrib on 2018-05-14
Coordinates are in feet referenced to Slot	Database: WA_MPL_EASTERNUS_Defn

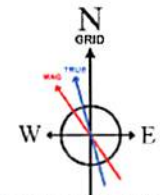
Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Middle Pad	1695090.990	14279417.689	39°19'21.010"N	80°48'24.020"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #07	-21.13	55.84	1695146.811	14279396.570
Comment	Jay Unit 1H		Latitude	Longitude
			39°19'20.800"N	80°48'23.310"W
Frontier 32 (RKB) to Ground level (At Slot: Slot #07)			32ft	
Mean Sea Level to Ground level (At Slot: Slot #07)			-843ft	
Frontier 32 (RKB) to Mean Sea Level			875ft	



- Gyrodatta MS Gyro <17-1/2"> (100°-505') : 0.27° Inc, 117.00ft MD, 117.00ft TVD, 0.18ft VS
- Gyrodatta MS Gyro <12-1/4"> (505°)(596°-776') : 0.17° Inc, 613.00ft MD, 613.00ft TVD, 0.67ft VS
- Directional ONE MWD <12-1/4"> (776°)(831°-2539') : 3.12° Inc, 848.00ft MD, 847.95ft TVD, 0.70ft VS
- Directional ONE MWD <8-3/4"> (2539°)(2649°-6443') : 15.04° Inc, 2666.00ft MD, 2627.73ft TVD, -169.37ft VS

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	6460.00	47.870	348.990	6261.87	171.58	1081.85	10.30	-274.78
Proj. to Bottom	6527.00	54.770	348.990	6303.72	222.51	1070.09	10.30	-223.38
End of 3D Arc	6567.10	56.480	343.138	6326.37	254.48	1061.55	9.00	-190.67
POE	6717.05	69.773	340.500	6394.00	381.20	1019.74	9.00	-57.80
Landing Pt.	6945.93	90.000	336.462	6434.00	589.60	937.30	9.00	166.18
BHL	16952.23	90.000	336.462	6434.00	9763.33	-3058.78	0.00	10172.48

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #07	Jay Unit 1H	Jay Unit 1H AWB	Jay Unit 1H AWP Proj: 16943'
Slot #07	Jay Unit 1H	Jay Unit 1H PWB	Jay Unit 1H PWP Rev-A.0

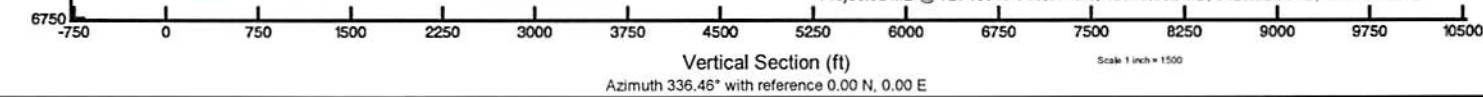


User specified Dip: 66.55° Field: 52032 nT
 Magnetic North is 7.64 degrees West of True North (at 2/28/2018)
 Grid North is 0.12 degrees East of True North
 To correct azimuth from True to Grid subtract 0.12 degrees
 To correct azimuth from Magnetic to Grid subtract 7.76 degrees

POE Marcellus: 6740' MD / 6400' TVD : 6400.34ft TVD, 402.09ft N, 1012.16ft E
 BH ATCurve <8-1/2"> (6460°)(6505°-16919') : 6290.93ft TVD, 204.87ft N, 1073.36ft E
 Slot #07
 Gyrodatta MS Gyro <17-1/2"> (100°-505') : 117.00ft TVD, 0.13ft N, 0.15ft W
 Gyrodatta MS Gyro <12-1/4"> (505°)(596°-776') : 613.00ft TVD, 0.36ft N, 0.84ft W
 Directional ONE MWD <12-1/4"> (776°)(831°-2539') : 847.95ft TVD, 1.43ft N, 1.53ft E
 Directional ONE MWD <8-3/4"> (2539°)(2649°-6443') : 2627.73ft TVD, 32.45ft S, 349.58ft E

BH ATCurve <8-1/2"> (6460°)(6505°-16919') : 51.68° Inc, 6505.00ft MD, 6290.93ft TVD, -240.88ft VS
 POE Marcellus: 6740' MD / 6400' TVD : 72.85° Inc, 6740.00ft MD, 6400.34ft TVD, -35.62ft VS

Projected MD @ TD: 16943' : 89.97° Inc, 16943.00ft MD, 6420.52ft TVD, 10135.48ft VS



API: 47-017-06822-0000
 BH Job #: 9047129
 Rig: Frontier 32
 Duration: 03/05/18 - 03/08/18

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Jay Unit 1H AWP Proj: 16943'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Doddridge Co., WV	Well	Jay Unit 1H
Field	Doddridge	Wellbore	Jay Unit 1H AWB
Facility	Middle Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Mccrerib
Scale	0.999603	Report Generated	5/14/2018 at 3:58:07 PM
Convergence at slot	0.12° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Jay_Unit_1H_AWP_Proj_16943_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-21.13	55.84	1695146.81	14279396.57	39°19'20.800"N	80°48'23.310"W
Facility Reference Pt			1695090.99	14279417.69	39°19'21.010"N	80°48'24.020"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Frontier 32 (RKB) to Facility Vertical Datum	875.00ft
Horizontal Reference Pt	Slot	Frontier 32 (RKB) to Mean Sea Level	875.00ft
Vertical Reference Pt	Frontier 32 (RKB)	Frontier 32 (RKB) to Ground Level at Slot (Slot #07)	32.00ft
MD Reference Pt	Frontier 32 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	336.46°

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Jay Unit 1H AWP Proj: 16943'
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REFERENCE WELLPATH IDENTIFICATION	
Operator	ANTERO RESOURCES CORPORATION
Area	Doddridge Co., WV
Field	Doddridge
Facility	Middle Pad
Slot #07	Jay Unit 1H
Well	Jay Unit 1H AWB
Wellbore	

WELLPATH DATA (207 stations) † = interpolated/extrapolated station																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (F/100ft)	Turn Rate (F/100ft)	Comments
0.00H	0.000	311.170	0.00	0.00	0.00	0.00	1695146.81	14279396.57	39°19'20.800"N	80°48'23.310"W	0.00	0.000	0.00	0.00	0.00	
32.00	0.000	311.170	32.00	0.00	0.00	0.00	1695146.81	14279396.57	39°19'20.800"N	80°48'23.310"W	0.00	0.000	0.00	0.00	0.00	
117.00	0.270	311.170	117.00	0.18	0.13	-0.15	1695146.66	14279396.70	39°19'20.801"N	80°48'23.312"W	0.20	311.170	0.32	0.32	-57.45	Gyrodata MS Gyro <17-1/2"> (100'-505')
217.00	0.130	285.490	217.00	0.47	0.32	-0.44	1695146.37	14279396.89	39°19'20.803"N	80°48'23.316"W	0.54	305.950	0.16	-0.14	-25.68	
317.00	0.190	296.230	317.00	0.66	0.42	-0.70	1695146.12	14279396.99	39°19'20.804"N	80°48'23.319"W	0.81	301.177	0.07	0.06	10.74	
417.00	0.050	22.270	417.00	0.82	0.53	-0.83	1695145.98	14279397.10	39°19'20.805"N	80°48'23.321"W	0.99	302.852	0.19	-0.14	86.04	
517.00	0.130	153.030	517.00	0.74	0.47	-0.76	1695146.05	14279397.04	39°19'20.805"N	80°48'23.320"W	0.90	301.947	0.17	0.08	130.76	
522.00	0.130	153.360	522.00	0.73	0.46	-0.75	1695146.06	14279397.03	39°19'20.805"N	80°48'23.320"W	0.89	301.567	0.01	0.00	6.60	
613.00	0.170	266.020	613.00	0.67	0.36	-0.84	1695145.97	14279396.93	39°19'20.804"N	80°48'23.321"W	0.92	293.239	0.28	0.04	123.80	Gyrodata MS Gyro <12-1/4"> (505')(596'-776')
703.00	0.360	299.880	703.00	0.94	0.49	-1.22	1695145.59	14279397.06	39°19'20.805"N	80°48'23.326"W	1.32	292.005	0.26	0.21	37.62	
793.00	1.280	69.700	792.99	1.11	0.98	-0.52	1695146.29	14279397.55	39°19'20.810"N	80°48'23.317"W	1.11	331.960	1.71	1.02	144.24	
848.00	3.120	81.160	847.95	0.70	1.43	1.53	1695148.34	14279398.00	39°19'20.814"N	80°48'23.290"W	2.09	47.038	3.42	3.35	20.84	Directional ONE MWD <12-1/4"> (776')(831'-2539')
938.00	4.340	76.320	937.76	-0.51	2.61	7.26	1695154.07	14279399.18	39°19'20.826"N	80°48'23.218"W	7.72	70.241	1.40	1.36	-5.38	
1026.00	4.610	91.260	1025.49	-2.56	3.32	14.03	1695160.84	14279399.89	39°19'20.832"N	80°48'23.131"W	14.42	76.696	1.36	0.31	16.98	
1114.00	6.100	103.610	1113.11	-6.87	-2.14	22.11	1695168.91	14279398.71	39°19'20.821"N	80°48'23.029"W	22.22	84.473	2.13	1.69	14.03	
1202.00	5.870	100.070	1200.63	-12.18	0.25	31.09	1695177.89	14279396.82	39°19'20.802"N	80°48'22.914"W	31.09	89.534	0.49	-0.26	-4.02	
1291.00	6.620	97.250	1289.10	-17.33	-1.19	40.66	1695187.45	14279395.38	39°19'20.787"N	80°48'22.793"W	40.68	91.677	0.91	0.84	-3.17	
1379.00	8.800	101.350	1376.30	-23.78	-3.16	52.29	1695199.08	14279393.42	39°19'20.768"N	80°48'22.645"W	52.39	93.453	2.55	2.48	4.66	
1467.00	11.430	100.670	1462.92	-32.53	-6.10	67.46	1695214.25	14279390.48	39°19'20.738"N	80°48'22.452"W	67.74	95.163	2.99	2.99	-0.77	
1555.00	12.910	100.990	1548.94	-43.01	-9.58	85.68	1695232.46	14279386.99	39°19'20.703"N	80°48'22.220"W	86.22	96.382	1.68	1.68	0.36	
1643.00	13.710	98.640	1634.58	-54.13	-13.02	105.64	1695252.41	14279383.55	39°19'20.669"N	80°48'21.966"W	106.44	97.029	1.10	0.91	-2.67	
1731.00	14.420	95.970	1719.94	-65.08	-15.73	126.85	1695273.61	14279380.84	39°19'20.642"N	80°48'21.696"W	127.82	97.069	1.09	0.81	-3.03	
1819.00	14.870	94.760	1805.08	-75.84	-17.81	149.00	1695295.75	14279378.77	39°19'20.621"N	80°48'21.415"W	150.06	96.815	0.62	0.51	-1.37	
1907.00	15.020	94.950	1890.11	-86.63	-19.73	171.61	1695318.36	14279376.85	39°19'20.601"N	80°48'21.127"W	172.74	96.558	0.18	0.17	0.22	
1995.00	14.320	96.870	1975.24	-97.58	-22.01	193.78	1695340.51	14279374.56	39°19'20.578"N	80°48'20.845"W	195.03	96.481	0.97	-0.80	2.18	
2084.00	14.070	98.110	2061.52	-108.82	-24.86	215.42	1695362.14	14279371.72	39°19'20.550"N	80°48'20.570"W	216.85	96.582	0.44	-0.28	1.39	
2172.00	14.200	94.370	2146.86	-119.49	-27.19	236.77	1695393.43	14279369.39	39°19'20.526"N	80°48'20.298"W	238.33	96.551	1.05	0.15	-4.25	
2260.00	13.690	93.540	2232.26	-129.28	-28.65	257.93	1695404.63	14279367.93	39°19'20.511"N	80°48'20.029"W	259.51	96.339	0.62	-0.58	-0.94	
2348.00	12.800	96.390	2317.92	-138.89	-30.38	278.01	1695424.71	14279366.20	39°19'20.494"N	80°48'19.773"W	279.66	96.237	1.25	-1.01	3.24	
2437.00	12.810	92.200	2404.71	-148.09	-31.86	297.66	1695444.36	14279364.72	39°19'20.479"N	80°48'19.523"W	299.36	96.109	1.04	0.01	-4.71	

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Actual Wellpath Report
 Jay Unit 1H AWP Proj: 16943
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Operator	ANTERO RESOURCES CORPORATION
Area	Doddridge Co., WV
Field	Doddridge
Facility	Middle Pad
Slot	Slot #07
Jay Unit 1H	Jay Unit 1H
Jay Unit 1H AWB	Jay Unit 1H AWB

WELLPATH DATA (207 stations)													
MD	Inclination	Azimuth	TVD	Vert Sec	North	East	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
2255.00	12.670	89.620	2490.55	-156.12	-32.17	317.06	1695463.75	14279364.41	39°19'20.475"N	80°48'19.276"W	318.69	95.793	0.67
2556.00	12.150	90.870	2520.82	-158.81	-32.20	323.73	1695470.41	14279364.39	39°19'20.475"N	80°48'19.192"W	325.32	95.680	1.89
2666.00	15.040	90.330	2627.73	-169.37	-32.45	349.58	1695466.25	14279364.13	39°19'20.472"N	80°48'18.863"W	351.08	95.304	2.63
2755.00	14.380	82.930	2713.82	-177.18	-31.16	372.09	1695518.76	14279365.42	39°19'20.464"N	80°48'18.576"W	373.40	94.787	2.24
2843.00	12.980	90.430	2799.33	-184.29	-29.89	392.82	1695539.48	14279366.69	39°19'20.496"N	80°48'18.312"W	393.96	94.351	2.56
2931.00	12.850	95.300	2885.10	-193.03	-30.87	412.45	1695559.10	14279366.72	39°19'20.486"N	80°48'18.063"W	413.60	94.280	1.25
3019.00	14.950	99.110	2970.52	-203.87	-33.57	433.41	1695580.04	14279363.01	39°19'20.459"N	80°48'17.796"W	434.70	94.429	2.60
3107.00	14.620	94.220	3055.61	-215.17	-36.18	455.69	1695602.32	14279360.02	39°19'20.433"N	80°48'17.513"W	457.12	94.540	1.47
3195.00	13.420	87.560	3140.99	-224.02	-36.57	476.97	1695623.59	14279360.02	39°19'20.428"N	80°48'17.242"W	478.37	94.384	2.28
3284.00	12.150	93.690	3227.80	-232.69	-37.38	496.57	1695643.19	14279359.21	39°19'20.420"N	80°48'16.992"W	497.98	94.305	2.89
3372.00	13.520	104.130	3313.60	-243.68	-41.13	515.73	1695662.33	14279355.46	39°19'20.383"N	80°48'16.749"W	517.37	94.560	2.25
3460.00	13.360	101.010	3399.19	-255.74	-45.58	535.68	1695682.28	14279351.01	39°19'20.338"N	80°48'16.495"W	537.62	94.864	0.84
3548.00	14.190	98.970	3484.66	-267.30	-49.21	556.32	1695702.91	14279347.38	39°19'20.302"N	80°48'16.233"W	558.49	95.055	1.09
3636.00	13.520	97.560	3570.10	-278.44	-52.28	577.17	1695723.75	14279344.32	39°19'20.271"N	80°48'15.967"W	579.53	95.175	0.83
3725.00	13.960	99.090	3656.55	-289.63	-55.37	598.08	1695744.65	14279341.22	39°19'20.240"N	80°48'15.701"W	600.63	95.290	0.61
3813.00	15.040	99.360	3741.75	-301.66	-59.03	619.80	1695766.37	14279337.57	39°19'20.203"N	80°48'15.425"W	622.61	95.440	1.25
3901.00	14.250	97.100	3828.89	-313.48	-62.34	641.80	1695788.35	14279333.25	39°19'20.170"N	80°48'15.145"W	644.82	95.548	1.22
3989.00	12.950	92.250	3912.42	-323.29	-64.07	662.40	1695808.95	14279332.53	39°19'20.153"N	80°48'14.883"W	665.49	95.524	1.96
4077.00	12.980	93.990	3998.18	-331.92	-64.88	682.13	1695828.66	14279332.74	39°19'20.144"N	80°48'14.632"W	685.20	95.433	0.07
4166.00	12.830	92.100	4084.93	-340.58	-65.68	701.99	1695848.52	14279330.92	39°19'20.136"N	80°48'14.379"W	705.05	95.345	0.19
4254.00	13.300	94.700	4170.66	-350.03	-67.36	721.79	1695868.31	14279329.24	39°19'20.119"N	80°48'14.128"W	724.92	95.332	1.49
4342.00	13.160	98.700	4256.32	-360.60	-70.20	741.72	1695888.24	14279326.40	39°19'20.090"N	80°48'13.874"W	745.04	95.407	0.35
4430.00	12.140	97.080	4342.19	-370.65	-72.86	760.81	1695907.32	14279323.74	39°19'20.064"N	80°48'13.631"W	764.29	95.470	1.23
4518.00	12.540	94.990	4428.15	-379.93	-74.83	779.51	1695926.01	14279321.77	39°19'20.044"N	80°48'13.393"W	783.09	95.483	0.68
4607.00	11.940	93.350	4515.13	-388.71	-76.21	798.33	1695944.82	14279320.39	39°19'20.030"N	80°48'13.154"W	801.95	95.453	0.78
4695.00	13.520	91.490	4600.96	-397.18	-77.01	817.70	1695964.18	14279319.59	39°19'20.021"N	80°48'12.907"W	821.32	95.380	1.85
4783.00	12.550	86.130	4686.70	-404.75	-76.63	837.52	1695984.00	14279319.97	39°19'20.025"N	80°48'12.655"W	841.02	95.228	1.76
4871.00	13.990	93.100	4772.35	-412.74	-76.56	857.68	1696004.15	14279320.04	39°19'20.025"N	80°48'12.399"W	861.09	95.101	2.44
4960.00	13.160	90.290	4858.87	-421.65	-77.19	878.56	1696025.02	14279319.41	39°19'20.018"N	80°48'12.133"W	881.94	95.021	1.19
5048.00	11.400	98.490	4944.86	-430.32	-78.53	897.18	1696043.63	14279318.07	39°19'20.005"N	80°48'11.896"W	900.61	95.002	2.81

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Actual Wellpath Report

Jay Unit 1H AWP Proj: 16943'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #07
Area	Doddridge Co., WV		Well	Jay Unit 1H
Field	Doddridge		Wellbore	Jay Unit 1H AWB
Facility	Middle Pad			

WELLPATH DATA (207 stations) † = interpolated/extrapolated station																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
5136.00	12.920	97.960	5030.88	-440.07	-81.17	915.53	1696061.97	14279315.43	39°19'19.978"N	80°48'11.663"W	919.12	95.067	1.73	1.73	-0.60	
5225.00	13.100	96.660	5117.59	-450.34	-83.72	935.40	1696081.84	14279312.88	39°19'19.953"N	80°48'11.410"W	939.14	95.115	0.39	0.20	-1.46	
5313.00	13.210	100.220	5203.29	-460.95	-86.66	955.20	1696101.63	14279309.94	39°19'19.923"N	80°48'11.158"W	959.12	95.184	0.93	0.12	4.05	
5401.00	12.540	99.080	5289.07	-471.68	-89.95	974.53	1696120.95	14279306.65	39°19'19.890"N	80°48'10.912"W	978.67	95.274	0.81	-0.76	-1.30	
5489.00	13.680	95.960	5374.78	-481.96	-92.54	994.31	1696140.73	14279304.07	39°19'19.864"N	80°48'10.661"W	998.61	95.317	1.52	1.30	-3.55	
5578.00	13.550	96.530	5461.28	-492.36	-94.82	1015.14	1696161.54	14279301.79	39°19'19.841"N	80°48'10.396"W	1019.56	95.336	0.21	-0.15	0.64	
5666.00	12.870	95.200	5546.95	-502.24	-96.88	1035.14	1696181.54	14279299.73	39°19'19.820"N	80°48'10.141"W	1039.66	95.347	0.85	-0.77	-1.51	
5710.00	14.080	94.910	5589.74	-507.15	-97.78	1045.35	1696191.75	14279298.83	39°19'19.811"N	80°48'10.011"W	1049.92	95.344	2.75	2.75	-0.66	
5754.00	13.770	82.880	5632.45	-511.18	-97.59	1055.88	1696202.27	14279299.02	39°19'19.813"N	80°48'09.877"W	1060.38	95.281	6.61	-0.70	-27.34	
5798.00	13.390	64.980	5675.24	-512.53	-94.79	1065.70	1696212.09	14279301.82	39°19'19.840"N	80°48'09.752"W	1069.91	95.083	9.55	-0.86	-40.68	
5842.00	13.660	49.790	5718.04	-510.91	-89.28	1074.29	1696220.67	14279307.33	39°19'19.895"N	80°48'09.643"W	1077.99	94.751	8.07	0.61	-34.52	
5886.00	13.800	39.490	5760.79	-507.03	-81.87	1081.59	1696227.97	14279314.73	39°19'19.968"N	80°48'09.550"W	1084.69	94.329	5.56	0.32	-23.41	
5931.00	14.160	35.620	5804.45	-501.78	-73.25	1088.21	1696234.59	14279323.34	39°19'20.053"N	80°48'09.465"W	1090.68	93.851	2.23	0.80	-8.60	
5975.00	15.530	26.130	5846.99	-495.21	-63.59	1093.94	1696240.32	14279333.01	39°19'20.148"N	80°48'09.392"W	1095.79	93.327	6.33	3.11	-21.57	
6019.00	17.870	18.360	5889.14	-486.37	-51.89	1098.66	1696245.04	14279344.70	39°19'20.264"N	80°48'09.332"W	1099.89	92.704	7.34	5.32	-17.66	
6063.00	20.130	13.340	5930.74	-475.28	-38.11	1102.54	1696248.91	14279358.47	39°19'20.400"N	80°48'09.282"W	1103.20	91.980	6.33	5.14	-11.41	
6107.00	22.370	9.620	5971.75	-462.22	-22.49	1105.69	1696252.06	14279374.09	39°19'20.554"N	80°48'09.241"W	1105.91	91.165	5.94	5.09	-8.45	
6151.00	25.600	4.580	6011.95	-446.82	-4.75	1107.84	1696254.21	14279391.82	39°19'20.729"N	80°48'09.213"W	1107.85	90.246	8.69	7.34	-11.45	
6195.00	29.070	359.590	6051.03	-428.60	15.42	1108.53	1696254.90	14279411.99	39°19'20.929"N	80°48'09.204"W	1108.63	89.203	9.44	7.89	-11.34	
6240.00	31.950	354.570	6089.80	-407.22	38.22	1107.32	1696253.69	14279434.77	39°19'21.154"N	80°48'09.219"W	1107.98	88.023	8.54	6.40	-11.16	
6284.00	33.440	351.050	6126.84	-384.42	61.78	1104.33	1696250.70	14279458.33	39°19'21.387"N	80°48'09.256"W	1106.06	86.798	5.49	3.39	-8.00	
6328.00	35.540	349.160	6163.10	-360.21	86.32	1100.04	1696246.41	14279482.86	39°19'21.630"N	80°48'09.310"W	1103.42	85.513	5.36	4.77	-4.30	
6372.00	39.220	348.090	6198.06	-334.10	112.50	1094.76	1696241.14	14279509.03	39°19'21.889"N	80°48'09.377"W	1100.53	84.133	8.49	8.36	-2.43	
6416.00	43.380	347.850	6231.11	-305.65	140.90	1088.71	1696235.09	14279537.41	39°19'22.169"N	80°48'09.453"W	1097.79	82.626	9.46	9.45	-0.55	
6460.00	47.870	346.990	6261.87	-274.78	171.58	1081.85	1696228.23	14279568.09	39°19'22.473"N	80°48'09.539"W	1095.38	80.988	10.30	10.20	-1.95	
6505.00	51.680	344.560	6290.93	-240.88	204.87	1073.39	1696219.78	14279601.36	39°19'22.802"N	80°48'09.646"W	1092.77	79.194	9.42	8.47	-5.40	BH ATCurve <8-1/2"> (6460')(6505'-16919')
6552.00	55.860	342.660	6318.70	-203.27	241.23	1062.68	1696209.07	14279637.70	39°19'23.162"N	80°48'09.781"W	1089.72	77.211	9.47	8.89	-4.04	
6570.00†	57.443	342.516	6328.60	-188.32	255.58	1058.18	1696204.57	14279652.04	39°19'23.303"N	80°48'09.838"W	1088.61	76.422	8.82	8.80	-0.80	Burket: 6570' MD / 6329' TVD
6601.00	60.170	342.280	6344.65	-161.95	280.85	1050.16	1696196.56	14279677.31	39°19'23.553"N	80°48'09.939"W	1087.07	75.028	8.82	8.80	-0.76	
6632.00†	62.947	342.641	6359.41	-134.84	306.84	1041.95	1696188.35	14279703.29	39°19'23.810"N	80°48'10.043"W	1086.19	73.591	9.01	8.96	1.16	Tully: 6632' MD / 6359' TVD

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Jay Unit 1H AWP Proj: 16943'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Doddridge Co., WV	Well	Jay Unit 1H
Field	Doddridge	Wellbore	Jay Unit 1H AWB
Facility	Middle Pad		

WELLPATH DATA (207 stations) † = interpolated/extrapolated station																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
6648.00	64.380	342.820	6366.51	-120.59	320.53	1037.70	1696184.09	14279716.97	39°19'23.946"N	80°48'10.097"W	1086.07	72.835	9.01	8.96	1.12	
6696.00	68.380	342.480	6385.74	-76.87	362.50	1024.58	1696170.98	14279758.93	39°19'24.361"N	80°48'10.263"W	1086.82	70.516	8.36	8.33	-0.71	
6711.00†	69.906	342.555	6391.08	-62.94	375.87	1020.37	1696166.77	14279772.29	39°19'24.493"N	80°48'10.316"W	1087.40	69.778	10.18	10.17	0.50	Hamilton: 6711MD / 6391TVD
6740.00†	72.855	342.696	6400.34	-35.62	402.09	1012.16	1696158.57	14279798.50	39°19'24.753"N	80°48'10.420"W	1089.11	68.334	10.18	10.17	0.49	POE Marcellus: 6740MD / 6400TVD
6743.00	73.160	342.710	6401.22	-32.76	404.83	1011.31	1696157.72	14279801.24	39°19'24.780"N	80°48'10.430"W	1089.33	68.184	10.18	10.17	0.48	
6791.00	76.520	344.110	6413.77	13.22	449.23	998.09	1696144.50	14279845.62	39°19'25.219"N	80°48'10.597"W	1094.53	65.768	7.54	7.00	2.92	
6838.00	80.540	344.360	6423.11	58.85	493.55	985.58	1696132.00	14279889.92	39°19'25.657"N	80°48'10.755"W	1102.25	63.400	8.57	8.55	0.53	
6886.00	83.180	344.020	6429.91	105.93	539.26	972.63	1696119.06	14279935.62	39°19'26.109"N	80°48'10.919"W	1112.12	60.994	5.54	5.50	-0.71	
6933.00	83.960	341.450	6435.17	152.35	583.86	958.77	1696105.20	14279980.20	39°19'26.550"N	80°48'11.094"W	1122.56	58.660	5.68	1.66	-5.47	
6981.00	86.860	339.920	6439.01	200.06	629.00	942.95	1696089.38	14280025.32	39°19'26.997"N	80°48'11.294"W	1133.49	56.294	6.83	6.04	-3.19	
7028.00	90.710	338.740	6440.01	246.98	672.96	926.36	1696072.81	14280069.26	39°19'27.432"N	80°48'11.504"W	1145.00	54.003	8.57	8.19	-2.51	
7077.00	90.220	336.300	6439.61	295.96	718.23	907.63	1696054.08	14280114.52	39°19'27.879"N	80°48'11.741"W	1157.43	51.645	5.08	-1.00	-4.98	
7172.00	90.030	335.640	6439.40	390.96	805.00	868.95	1696015.41	14280201.25	39°19'28.738"N	80°48'12.231"W	1184.52	47.188	0.72	-0.20	-0.69	
7266.00	89.940	334.160	6439.43	484.92	890.12	829.07	1695975.55	14280286.33	39°19'29.580"N	80°48'12.736"W	1216.42	42.966	1.58	-0.10	-1.57	
7361.00	89.970	333.490	6439.50	579.82	975.38	787.17	1695933.66	14280371.56	39°19'30.423"N	80°48'13.267"W	1253.39	38.905	0.71	0.03	-0.71	
7456.00	90.030	332.860	6439.50	674.66	1060.15	744.30	1695890.81	14280456.30	39°19'31.262"N	80°48'13.810"W	1295.34	35.071	0.67	0.06	-0.66	
7552.00	90.120	329.850	6439.38	770.27	1144.39	698.28	1695844.81	14280540.51	39°19'32.096"N	80°48'14.393"W	1340.61	31.391	3.14	0.09	-3.14	
7646.00	90.120	327.770	6439.18	863.43	1224.80	649.60	1695796.16	14280620.88	39°19'32.892"N	80°48'15.010"W	1386.41	27.940	2.21	0.00	-2.21	
7741.00	90.120	331.540	6438.98	957.74	1306.77	601.62	1695748.19	14280702.82	39°19'33.703"N	80°48'15.619"W	1438.61	24.721	3.97	0.00	3.97	
7836.00	90.280	335.550	6438.65	1052.60	1391.81	559.30	1695705.89	14280787.82	39°19'34.544"N	80°48'16.155"W	1499.98	21.893	4.22	0.17	4.22	
7931.00	90.280	333.260	6438.19	1147.53	1477.48	518.27	1695664.87	14280873.46	39°19'35.392"N	80°48'16.675"W	1565.74	19.330	2.41	0.00	-2.41	
8026.00	90.150	334.860	6437.83	1242.45	1562.90	476.71	1695623.33	14280958.85	39°19'36.237"N	80°48'17.201"W	1633.99	16.963	1.69	-0.14	1.68	
8121.00	89.780	336.940	6437.89	1337.44	1649.62	437.92	1695584.56	14281045.53	39°19'37.095"N	80°48'17.692"W	1706.75	14.867	2.22	-0.39	2.19	
8217.00	90.180	339.000	6437.92	1433.40	1738.60	401.92	1695548.57	14281134.48	39°19'37.975"N	80°48'18.148"W	1784.45	13.017	2.19	0.42	2.15	
8312.00	90.150	336.800	6437.65	1528.36	1826.62	366.18	1695512.84	14281222.46	39°19'38.846"N	80°48'18.601"W	1862.96	11.336	2.32	-0.03	-2.32	
8407.00	90.220	332.790	6437.34	1623.30	1912.55	325.73	1695472.41	14281308.36	39°19'39.696"N	80°48'19.113"W	1940.09	9.665	4.22	0.07	-4.22	
8502.00	89.780	336.570	6437.34	1718.24	1998.41	285.11	1695431.81	14281394.18	39°19'40.546"N	80°48'19.627"W	2018.65	8.119	4.01	-0.46	3.98	
8597.00	90.220	339.490	6437.34	1813.19	2086.50	249.57	1695396.28	14281482.24	39°19'41.417"N	80°48'20.077"W	2101.38	6.821	3.11	0.46	3.07	
8692.00	90.150	339.550	6437.03	1908.05	2175.50	216.33	1695363.06	14281571.20	39°19'42.297"N	80°48'20.498"W	2186.23	5.679	0.10	-0.07	0.06	
8788.00	89.720	340.390	6437.14	2003.87	2265.69	183.45	1695330.19	14281661.36	39°19'43.189"N	80°48'20.914"W	2273.10	4.629	0.98	-0.45	0.88	

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Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Doddridge Co., WV	Well	Jay Unit 1H
Field	Doddridge	Wellbore	Jay Unit 1H AWB
Facility	Middle Pad		

WELLPATH DATA (207 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
8883.00	90.150	343.360	6437.25	2098.44	2355.97	153.90	1695300.65	14281751.60	39°19'44.082"N	80°48'21.287"W	2360.99	3.737	3.16	0.45	3.13	
8978.00	90.460	343.390	6436.74	2192.75	2446.99	126.72	1695273.48	14281842.59	39°19'44.983"N	80°48'21.631"W	2450.27	2.965	0.33	0.33	0.03	
9073.00	89.600	341.440	6436.69	2287.23	2537.55	98.02	1695244.79	14281933.11	39°19'45.878"N	80°48'21.993"W	2539.44	2.212	2.24	-0.91	-2.05	
9168.00	90.120	336.510	6436.93	2382.11	2626.20	63.95	1695210.73	14282021.72	39°19'46.755"N	80°48'22.425"W	2626.97	1.395	5.22	0.55	-5.19	
9264.00	90.060	330.770	6436.78	2477.95	2712.18	21.34	1695168.14	14282107.67	39°19'47.606"N	80°48'22.965"W	2712.26	0.451	5.98	-0.06	-5.98	
9359.00	90.030	332.100	6436.70	2572.58	2795.61	-24.08	1695122.74	14282191.07	39°19'48.431"N	80°48'23.540"W	2795.72	359.506	1.40	-0.03	1.40	
9454.00	90.150	340.360	6436.55	2667.50	2882.48	-62.34	1695084.50	14282277.90	39°19'49.291"N	80°48'24.025"W	2883.15	358.761	8.70	0.13	8.69	
9549.00	90.250	343.930	6436.22	2762.02	2972.89	-91.46	1695055.38	14282368.27	39°19'50.185"N	80°48'24.393"W	2974.29	358.238	3.76	0.11	3.76	
9644.00	90.280	335.380	6435.78	2856.78	3061.88	-124.46	1695022.40	14282457.23	39°19'51.065"N	80°48'24.810"W	3064.41	357.672	9.00	0.03	-9.00	
9739.00	90.120	335.920	6435.45	2951.77	3148.43	-163.63	1694983.25	14282543.74	39°19'51.921"N	80°48'25.307"W	3152.67	357.025	0.59	-0.17	0.57	
9834.00	90.030	338.130	6435.32	3046.76	3235.88	-200.71	1694946.18	14282631.16	39°19'52.787"N	80°48'25.776"W	3242.10	356.451	2.33	-0.09	2.33	
9929.00	89.690	341.120	6435.56	3141.60	3324.93	-233.78	1694913.12	14282720.17	39°19'53.667"N	80°48'26.195"W	3333.14	355.978	3.17	-0.36	3.15	
10025.00	90.310	342.130	6435.56	3237.21	3416.03	-264.04	1694882.87	14282811.24	39°19'54.568"N	80°48'26.577"W	3426.22	355.580	1.23	0.65	1.05	
10120.00	90.340	343.360	6435.02	3331.64	3506.75	-292.22	1694854.71	14282901.93	39°19'55.466"N	80°48'26.933"W	3518.91	355.237	1.30	0.03	1.29	
10214.00	90.310	339.580	6434.48	3425.26	3595.86	-322.09	1694824.85	14282991.00	39°19'56.347"N	80°48'27.311"W	3610.26	354.882	4.02	-0.03	-4.02	
10309.00	90.030	330.450	6434.20	3520.13	3681.88	-362.17	1694784.78	14283076.98	39°19'57.198"N	80°48'27.819"W	3699.65	354.382	9.61	-0.29	-9.61	
10404.00	90.180	330.730	6434.03	3614.63	3764.64	-408.82	1694738.15	14283159.71	39°19'58.017"N	80°48'28.410"W	3786.77	353.802	0.33	0.16	0.29	
10499.00	89.850	331.020	6434.00	3709.18	3847.63	-455.06	1694691.93	14283242.66	39°19'58.838"N	80°48'28.996"W	3874.44	353.255	0.46	-0.35	0.31	
10594.00	90.150	335.060	6434.00	3803.99	3932.28	-498.12	1694648.89	14283327.29	39°19'59.676"N	80°48'29.542"W	3963.71	352.781	4.26	0.32	4.25	
10689.00	90.060	338.180	6433.83	3898.98	4019.47	-535.81	1694611.21	14283414.44	39°20'00.538"N	80°48'30.019"W	4055.03	352.407	3.29	-0.09	3.28	
10784.00	90.090	333.830	6433.70	3993.95	4106.24	-574.44	1694572.60	14283501.18	39°20'01.397"N	80°48'30.509"W	4146.23	352.036	4.58	0.03	-4.58	
10879.00	90.250	333.930	6433.42	4088.85	4191.54	-616.26	1694530.80	14283586.44	39°20'02.241"N	80°48'31.039"W	4236.60	351.636	0.20	0.17	0.11	
10974.00	90.580	333.360	6432.73	4183.74	4276.66	-658.43	1694488.64	14283671.53	39°20'03.083"N	80°48'31.573"W	4327.05	351.247	0.69	0.35	-0.60	
11069.00	90.000	328.460	6432.25	4278.26	4359.65	-704.61	1694442.49	14283754.49	39°20'03.904"N	80°48'32.158"W	4416.23	350.819	5.19	-0.61	-5.16	
11164.00	89.880	325.930	6432.35	4372.01	4439.50	-756.07	1694391.04	14283834.30	39°20'04.694"N	80°48'32.811"W	4503.42	350.335	2.67	-0.13	-2.66	
11259.00	89.940	327.310	6432.50	4465.61	4518.82	-808.34	1694338.80	14283913.59	39°20'05.479"N	80°48'33.474"W	4590.55	349.858	1.45	0.06	1.45	
11354.00	89.940	332.830	6432.60	4559.99	4601.12	-855.72	1694291.43	14283995.86	39°20'06.294"N	80°48'34.075"W	4680.02	349.464	5.81	0.00	5.81	
11449.00	90.000	332.740	6432.65	4654.79	4685.60	-899.17	1694248.00	14284080.31	39°20'07.130"N	80°48'34.626"W	4771.10	349.137	0.11	0.06	-0.09	
11545.00	89.720	334.020	6432.89	4750.65	4771.43	-942.18	1694205.01	14284166.09	39°20'07.979"N	80°48'35.171"W	4863.56	348.830	1.36	-0.29	1.33	
11640.00	89.820	333.120	6433.27	4845.53	4856.50	-984.46	1694162.74	14284251.13	39°20'08.820"N	80°48'35.707"W	4955.27	348.541	0.95	0.11	-0.95	

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Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Doddridge Co., WV	Well	Jay Unit 1H
Field	Doddridge	Wellbore	Jay Unit 1H AWB
Facility	Middle Pad		

WELLPATH DATA (207 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
11735.00	90.000	340.930	6433.42	4940.45	4943.89	-1021.52	1694125.70	14284338.49	39°20'09.685"N	80°48'36.176"W	5048.32	348.326	8.22	0.19	8.22	
11831.00	90.060	344.330	6433.37	5035.88	5035.50	-1050.17	1694097.06	14284430.06	39°20'10.591"N	80°48'36.538"W	5143.84	348.220	3.54	0.06	3.54	
11926.00	90.180	345.490	6433.17	5129.85	5127.22	-1074.90	1694072.34	14284521.75	39°20'11.498"N	80°48'36.851"W	5238.69	348.160	1.23	0.13	1.22	
12021.00	90.180	348.180	6432.87	5223.28	5219.72	-1096.54	1694050.71	14284614.21	39°20'12.413"N	80°48'37.123"W	5333.65	348.136	2.83	0.00	2.83	
12116.00	91.260	348.610	6431.67	5316.22	5312.77	-1115.65	1694031.61	14284707.22	39°20'13.333"N	80°48'37.364"W	5428.64	348.141	1.22	1.14	0.45	
12211.00	89.970	336.970	6430.65	5410.47	5403.35	-1143.70	1694003.56	14284797.77	39°20'14.229"N	80°48'37.719"W	5523.06	348.049	12.33	-1.36	-12.25	
12306.00	89.970	337.400	6430.70	5505.47	5490.92	-1180.54	1693966.74	14284885.30	39°20'15.095"N	80°48'38.185"W	5616.39	347.866	0.45	0.00	0.45	
12402.00	90.120	336.800	6430.63	5601.46	5579.35	-1217.90	1693929.40	14284973.70	39°20'15.970"N	80°48'38.658"W	5710.73	347.686	0.64	0.16	-0.63	
12497.00	90.000	337.700	6430.53	5696.45	5666.96	-1254.63	1693892.68	14285061.27	39°20'16.836"N	80°48'39.124"W	5804.18	347.516	0.96	-0.13	0.95	
12592.00	90.030	331.840	6430.50	5791.37	5752.86	-1295.11	1693852.22	14285147.13	39°20'17.686"N	80°48'39.636"W	5896.84	347.313	6.17	0.03	-6.17	
12687.00	90.090	331.070	6430.40	5886.00	5836.31	-1340.51	1693806.84	14285230.55	39°20'18.512"N	80°48'40.212"W	5988.28	347.064	0.81	0.06	-0.81	
12782.00	89.910	332.890	6430.40	5980.71	5920.17	-1385.13	1693762.23	14285314.38	39°20'19.342"N	80°48'40.778"W	6080.05	346.831	1.93	-0.19	1.92	
12877.00	89.750	333.610	6430.68	6075.56	6005.00	-1427.89	1693719.49	14285399.18	39°20'20.181"N	80°48'41.320"W	6172.43	346.624	0.78	-0.17	0.76	
12972.00	90.680	332.130	6430.33	6170.37	6089.55	-1471.21	1693676.19	14285483.69	39°20'21.018"N	80°48'41.869"W	6264.74	346.418	1.84	0.98	-1.56	
13067.00	90.310	331.600	6429.51	6265.06	6173.32	-1516.01	1693631.41	14285567.43	39°20'21.846"N	80°48'42.437"W	6356.74	346.203	0.68	-0.39	-0.56	
13162.00	90.830	337.070	6428.56	6359.95	6258.91	-1557.13	1693590.30	14285652.98	39°20'22.693"N	80°48'42.958"W	6449.70	346.029	5.78	0.55	5.76	
13257.00	90.280	335.210	6427.64	6454.94	6345.78	-1595.56	1693551.89	14285739.82	39°20'23.553"N	80°48'43.445"W	6543.30	345.886	2.04	-0.58	-1.96	
13352.00	90.250	334.050	6427.20	6549.89	6431.62	-1636.26	1693511.20	14285825.62	39°20'24.402"N	80°48'43.960"W	6636.49	345.726	1.22	-0.03	-1.22	
13447.00	90.250	334.140	6426.79	6644.81	6517.07	-1677.76	1693469.71	14285911.04	39°20'25.247"N	80°48'44.486"W	6729.57	345.563	0.09	0.00	0.09	
13542.00	90.400	337.450	6426.25	6739.79	6603.70	-1716.71	1693430.79	14285997.64	39°20'26.104"N	80°48'44.980"W	6823.19	345.428	3.49	0.16	3.48	
13637.00	90.400	342.110	6425.58	6834.60	6692.82	-1749.53	1693397.97	14286086.72	39°20'26.986"N	80°48'45.395"W	6917.71	345.350	4.91	0.00	4.91	
13732.00	90.460	338.210	6424.87	6929.38	6782.16	-1781.77	1693365.75	14286176.03	39°20'27.869"N	80°48'45.803"W	7012.31	345.280	4.11	0.06	-4.11	
13827.00	90.340	338.190	6424.21	7024.33	6870.37	-1817.05	1693330.49	14286264.20	39°20'28.742"N	80°48'46.250"W	7106.59	345.186	0.13	-0.13	-0.02	
13922.00	90.310	341.990	6423.67	7119.13	6959.67	-1849.39	1693298.15	14286353.47	39°20'29.625"N	80°48'46.659"W	7201.20	345.119	4.00	-0.03	4.00	
14017.00	90.460	342.610	6423.03	7213.63	7050.17	-1878.28	1693269.28	14286443.93	39°20'30.520"N	80°48'47.024"W	7296.08	345.082	0.67	0.16	0.65	
14112.00	90.370	335.850	6422.34	7308.46	7138.94	-1911.94	1693235.63	14286532.67	39°20'31.398"N	80°48'47.451"W	7390.54	345.007	7.12	-0.09	-7.12	
14206.00	89.970	337.230	6422.06	7402.46	7225.17	-1949.36	1693198.22	14286618.86	39°20'32.251"N	80°48'47.925"W	7483.52	344.901	1.53	-0.43	1.47	
14302.00	90.180	336.990	6421.94	7498.45	7313.61	-1986.71	1693160.90	14286707.27	39°20'33.126"N	80°48'48.398"W	7578.65	344.803	0.33	0.22	-0.25	
14396.00	90.310	339.550	6421.53	7592.40	7400.92	-2021.50	1693126.11	14286794.54	39°20'33.990"N	80°48'48.838"W	7672.04	344.723	2.73	0.14	2.72	
14491.00	90.150	340.800	6421.15	7687.19	7490.29	-2053.72	1693093.91	14286883.87	39°20'34.874"N	80°48'49.246"W	7766.74	344.667	1.33	-0.17	1.32	

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Actual Wellpath Report

Jay Unit 1H AWP Proj: 16943'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #07
Area	Doddridge Co., WV		Well	Jay Unit 1H
Field	Doddridge		Wellbore	Jay Unit 1H AWB
Facility	Middle Pad			

WELLPATH DATA (207 stations)																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	Comments
14587.00	90.770	339.400	6420.38	7782.99	7580.55	-2086.40	1693061.25	14286974.10	39°20'35.767"N	80°48'49.659"W	7862.43	344.611	1.59	0.65	-1.46	
14682.00	90.150	334.120	6419.62	7877.96	7667.81	-2123.87	1693023.79	14287061.32	39°20'36.630"N	80°48'50.134"W	7956.51	344.518	5.60	-0.65	-5.56	
14777.00	90.000	333.580	6419.50	7972.86	7753.09	-2165.74	1692981.94	14287146.57	39°20'37.474"N	80°48'50.665"W	8049.89	344.393	0.59	-0.16	-0.57	
14872.00	89.820	334.220	6419.64	8067.76	7838.40	-2207.53	1692940.16	14287231.84	39°20'38.318"N	80°48'51.195"W	8143.32	344.271	0.70	-0.19	0.67	
14968.00	89.910	335.040	6419.87	8163.71	7925.14	-2248.66	1692899.05	14287318.55	39°20'39.176"N	80°48'51.716"W	8237.98	344.159	0.86	0.09	0.85	
15063.00	89.880	334.890	6420.04	8258.68	8011.21	-2288.86	1692858.86	14287404.59	39°20'40.027"N	80°48'52.225"W	8331.77	344.055	0.16	-0.03	-0.16	
15158.00	89.750	337.770	6420.35	8353.67	8098.21	-2327.00	1692820.74	14287491.55	39°20'40.888"N	80°48'52.708"W	8425.91	343.968	3.03	-0.14	3.03	
15253.00	90.220	338.920	6420.38	8448.61	8186.50	-2362.05	1692785.70	14287579.81	39°20'41.761"N	80°48'53.152"W	8520.46	343.906	1.31	0.49	1.21	
15348.00	89.850	336.030	6420.32	8543.59	8274.25	-2398.44	1692749.32	14287667.52	39°20'42.629"N	80°48'53.613"W	8614.85	343.835	3.07	-0.39	-3.04	
15443.00	89.780	335.080	6420.62	8638.58	8360.73	-2437.76	1692710.03	14287753.97	39°20'43.485"N	80°48'54.111"W	8708.87	343.745	1.00	-0.07	-1.00	
15538.00	89.820	331.890	6420.96	8733.44	8445.73	-2480.16	1692667.64	14287838.93	39°20'44.326"N	80°48'54.649"W	8802.36	343.635	3.36	0.04	-3.36	
15634.00	89.850	335.880	6421.23	8829.32	8531.91	-2522.41	1692625.41	14287925.08	39°20'45.178"N	80°48'55.184"W	8896.97	343.530	4.16	0.03	4.16	
15729.00	90.000	339.510	6421.36	8924.28	8619.79	-2558.46	1692589.37	14288012.92	39°20'46.048"N	80°48'55.641"W	8991.46	343.468	3.82	0.16	3.82	
15823.00	90.090	337.430	6421.28	9018.22	8707.22	-2592.95	1692554.89	14288100.32	39°20'46.913"N	80°48'56.078"W	9085.10	343.417	2.21	0.10	-2.21	
15918.00	90.150	337.270	6421.08	9113.21	8794.89	-2629.54	1692518.32	14288187.96	39°20'47.780"N	80°48'56.541"W	9179.58	343.354	0.18	0.06	-0.17	
16013.00	90.150	336.220	6420.84	9208.20	8882.18	-2667.05	1692480.83	14288275.20	39°20'48.643"N	80°48'57.016"W	9273.95	343.287	1.11	0.00	-1.11	
16108.00	90.060	337.990	6420.66	9303.19	8969.69	-2704.00	1692443.88	14288362.68	39°20'49.509"N	80°48'57.484"W	9368.40	343.224	1.87	-0.09	1.86	
16203.00	90.220	339.230	6420.43	9398.12	9058.14	-2738.65	1692409.25	14288451.10	39°20'50.384"N	80°48'57.923"W	9463.09	343.178	1.32	0.17	1.31	
16298.00	89.970	337.480	6420.27	9493.07	9146.44	-2773.69	1692374.23	14288539.36	39°20'51.257"N	80°48'58.367"W	9557.76	343.130	1.86	-0.26	-1.84	
16393.00	90.000	337.200	6420.30	9588.06	9234.11	-2810.29	1692337.64	14288627.00	39°20'52.124"N	80°48'58.831"W	9652.28	343.073	0.30	0.03	-0.29	
16489.00	90.090	332.040	6420.22	9683.97	9320.81	-2851.42	1692296.52	14288713.67	39°20'52.982"N	80°48'59.352"W	9747.21	342.990	5.38	0.09	-5.37	
16583.00	89.910	326.940	6420.22	9777.25	9401.77	-2899.13	1692248.84	14288794.59	39°20'53.783"N	80°48'59.957"W	9838.61	342.862	5.43	-0.19	-5.43	
16678.00	89.660	328.260	6420.58	9871.11	9481.98	-2950.03	1692197.95	14288874.77	39°20'54.577"N	80°49'00.603"W	9930.29	342.718	1.41	-0.26	1.39	
16773.00	90.150	332.510	6420.74	9965.56	9564.55	-2996.97	1692151.04	14288957.31	39°20'55.394"N	80°49'01.198"W	10023.09	342.602	4.50	0.52	4.47	
16869.00	90.090	336.590	6420.53	10061.48	9651.21	-3038.21	1692109.81	14289043.94	39°20'56.251"N	80°49'01.721"W	10118.14	342.526	4.25	-0.06	4.25	
16919.00	89.970	336.840	6420.51	10111.48	9697.14	-3057.98	1692090.05	14289089.85	39°20'56.706"N	80°49'01.971"W	10167.88	342.497	0.55	-0.24	0.50	
16943.00	89.970	336.840	6420.52	10135.48	9719.21	-3067.42	1692080.62	14289111.90	39°20'56.924"N	80°49'02.091"W	10191.76	342.484	0.00	0.00	0.00	Projected MD @ TD: 16943'

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Jay Unit 1H AWP Proj: 16943'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Doddridge Co., WV	Well	Jay Unit 1H
Field	Doddridge	Wellbore	Jay Unit 1H AWB
Facility	Middle Pad		

HOLE & CASING SECTIONS - Ref Wellbore: Jay Unit 1H AWB Ref Wellpath: Jay Unit 1H AWP Proj: 16943'									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
20in Conductor	32.00	112.00	80.00	32.00	112.00	0.00	0.00	0.12	-0.13
17.5in Open Hole	112.00	548.00	436.00	112.00	548.00	0.12	-0.13	0.42	-0.74
13.375in Casing Surface	32.00	548.00	516.00	32.00	548.00	0.00	0.00	0.42	-0.74
12.25in Open Hole	548.00	2628.00	2080.00	548.00	2590.95	0.42	-0.74	-32.39	340.04
9.625in Casing Intermediate	32.00	2628.00	2596.00	32.00	2590.95	0.00	0.00	-32.39	340.04
8.75in Open Hole	2628.00	6527.00	3899.00	2590.95	6304.27	-32.39	340.04	221.69	1068.60
8.5in Open Hole	6527.00	16943.00	10416.00	6304.27	6420.52	221.69	1068.60	9719.21	-3067.42
5.5in Casing Production	32.00	16943.00	16911.00	32.00	6420.52	0.00	0.00	9719.21	-3067.42

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Jay Unit 1H POE Rev-2	6394.00	381.20	1019.74	1696166.15	14279777.61	39°19'24.546"N	80°48'10.324"W	point
Jay Unit 1H BHL Rev-2	6434.00	9763.33	-3058.78	1692089.25	14289156.01	39°20'57.360"N	80°49'01.980"W	point
Jay Unit 1H LP Rev-1	6434.00	589.60	937.30	1696083.74	14279985.93	39°19'26.607"N	80°48'11.367"W	point

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Jay Unit 1H AWP Proj: 16943'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Doddridge Co., WV	Well	Jay Unit 1H
Field	Doddridge	Wellbore	Jay Unit 1H AWB
Facility	Middle Pad		

WELLPATH COMPOSITION - Ref Wellbore: Jay Unit 1H AWB Ref Wellpath: Jay Unit 1H AWP Proj: 16943'				
Start MD (ft)	End MD (ft)	Positional Uncertainty Model	Log Name/Comment	Wellbore
32.00	522.00	Gyrodata standard - Drop gyro or Multi-shot	01 Gyrodata MS Gyro <17-1/2"> (100'-505')	Jay Unit 1H AWB
522.00	793.00	Gyrodata standard - Drop gyro or Multi-shot	02 Gyrodata MS Gyro <12-1/4"> (505')(596'-776')	Jay Unit 1H AWB
793.00	2556.00	ISCWSA MWD, Rev. 4 (Standard)	03 Directional ONE MWD <12-1/4"> (776')(831'-2539')	Jay Unit 1H AWB
2556.00	6460.00	ISCWSA MWD, Rev. 4 (Standard)	04 Directional ONE MWD <8-3/4"> (2539')(2649'-6443')	Jay Unit 1H AWB
6460.00	16919.00	BHI AutoTrak Curve (Short)	05 BH ATCurve <8-1/2"> (6460')(6505'-16919')	Jay Unit 1H AWB
16919.00	16943.00	Blind Drilling (std)	Projection to bit	Jay Unit 1H AWB



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Jay Unit 1H AWP Proj: 16943'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Doddridge Co., WV	Well	Jay Unit 1H
Field	Doddridge	Wellbore	Jay Unit 1H AWB
Facility	Middle Pad		

COMMENTS
<p>Wellpath general comments API: 47-017-06822-0000 BH Job #: 9047129 Rig: Frontier 32 Duration: 03/05/18 - 03/08/18 Gyrodata MS Gyro <17-1/2"> (100'-505') Gyrodata MS Gyro <12-1/4"> (505')(596'-776') Directional ONE MWD <12-1/4"> (776')(831'-2539') Directional ONE MWD <8-3/4"> (2539')(2649'-6443') BH ATCurve <8-1/2"> (6460')(6505'-16919') Burket: 6570'MD / 6329'TVD Tully: 6632'MD / 6359'TVD Hamilton: 6711'MD / 6391'TVD POE Marcellus: 6740'MD / 6400'TVD Projected MD @ TD: 16943'</p>

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/12/2018
Job End Date:	7/15/2018
State:	West Virginia
County:	Doddridge
API Number:	47-017-06822-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Jay 1H
Latitude:	39.32224440
Longitude:	-80.80647500
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,440
Total Base Water Volume (gal):	19,349,986
Total Base Non Water Volume:	0



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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
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	88.36803	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.36619	

SAND-PREMIUM WHITE-30/50	Halliburton	Proppant					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
SAND-PREMIUM WHITE-40/70	Halliburton	Proppant					
				Listed Below			
Excelerate PS-2	Halliburton	Friction Reducer					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
SP BREAKER	Halliburton	Breaker					
				Listed Below			
LP-70	Halliburton	Scale Inhibitor					

				Listed Below			
SAND-COMMON WHITE - 100 MESH	Halliburton	Proppant					
				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	11.19679	
			Hydrochloric acid	7647-01-0	15.00000	0.04699	
			Guar gum	9000-30-0	100.00000	0.03629	
			Inorganic salt	Proprietary	30.00000	0.01857	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01857	
			Acrylamide acrylate copolymer	Proprietary	30.00000	0.01857	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Ethylene Glycol	107-21-1	60.00000	0.00824	
			Glutaraldehyde	111-30-8	30.00000	0.00272	
			Neutralized Polyacrylic Emulsion	Proprietary	10.00000	0.00137	
			Sodium persulfate	7775-27-1	100.00000	0.00066	
			Quaternary ammonium compounds, benzyl-C12- 16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00045	
			Methanol	67-56-1	60.00000	0.00015	
			Ethanol	64-17-5	1.00000	0.00009	
			Ethoxylated alcohols	Proprietary	30.00000	0.00007	
			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1	30.00000	0.00007	
			Fatty acids, tall oil	Proprietary	30.00000	0.00007	
			Olefins	Proprietary	5.00000	0.00003	

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			Propargyl alcohol	107-19-7	10.00000	0.00002
			Phosphoric acid	7664-38-2	0.10000	0.00001
			Sodium sulfate	7757-82-6	0.10000	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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7,390' to Bottom Hole

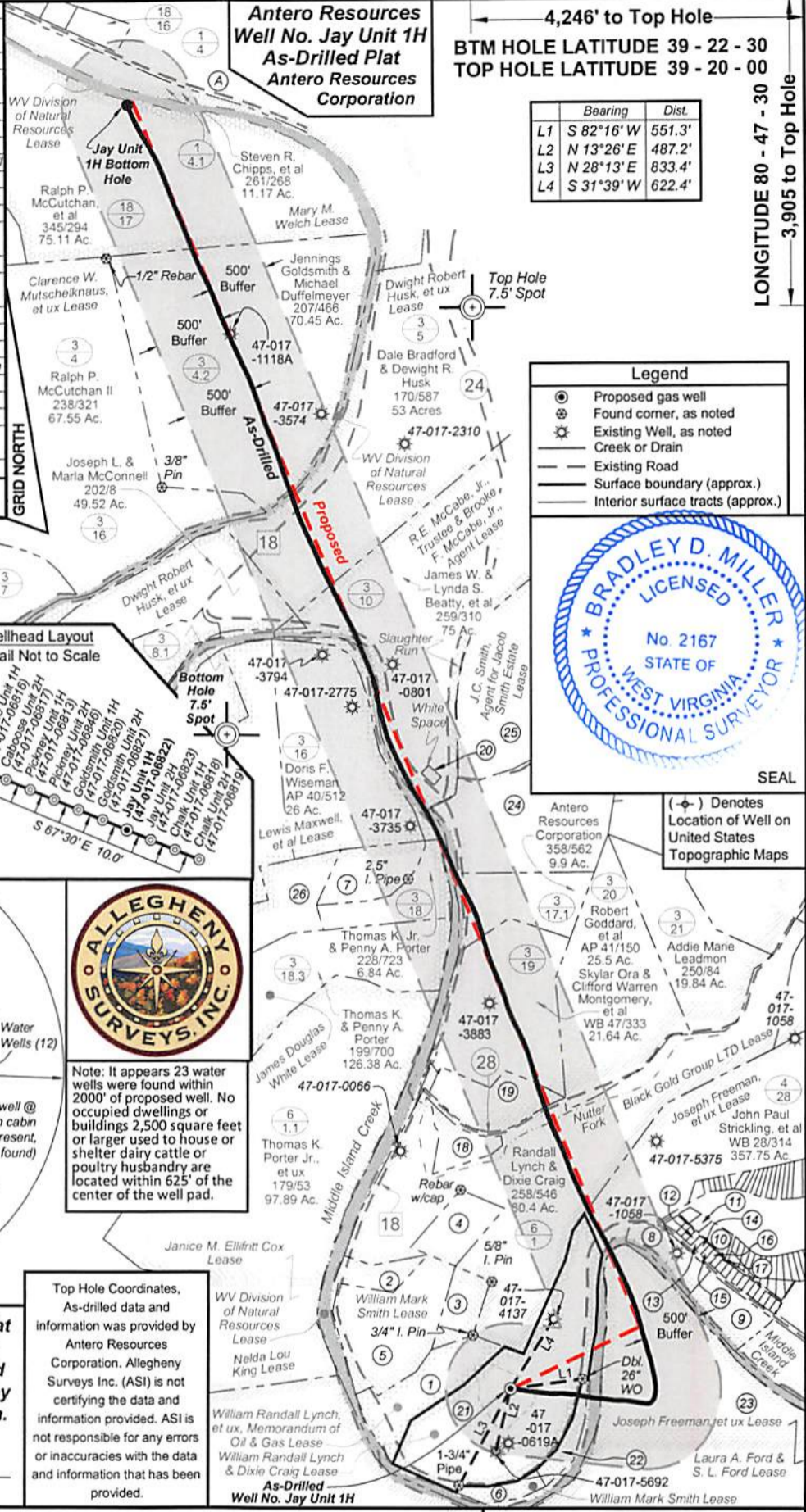
4,246' to Top Hole

BTM HOLE LATITUDE 39 - 22 - 30
TOP HOLE LATITUDE 39 - 20 - 00

LONGITUDE 80 - 47 - 30
3,905' to Top Hole

9,317' to Bottom Hole

TM/Par	Bk /Pg	Acres	Owner(s)	
1	6/2.5	253 / 222	8.66	William Randall Lynch & Dixie Janet Craig
2	6/2.8	305 / 419	2.68	
3	6/2.6	266 / 36	3.52	Dominion Field Services, Inc.
4	6/1.3	305 / 416	4.68	
5	6/2.4	163 / 44	14.98	Equitrans, L.P.
6	6/2.3	197 / 659	6.00	Carol & Alfreda Painter
7	3/18.2	232 / 135	357.75	David J. & Debra S. Smith
8	6/7	AP 35 / 212	3.46	Debra L. Stout
9	7/4.2	293 / 340	4.19	Joseph D. & Brittany C. McConnell
10	29/46	- / -	Lot 231	Crystal Lake Club
11	29/46.2	302 / 278	p/o Lot 231	Ronald O. & Barbara C. Moran
12	29/90	249 / 639	Lot 204	Shaun L. & Mary K. Cass
13	29/91	256 / 408	Lot 205	Janet M. Esposito & Scarlett C. Dennison
14	29/92	260 / 127	Lot 206	
15	29/93	162 / 328	Lot 207	James L. & Patricia Reed
16	29/94	219 / 583	Lot 208	
17	29/95	219 / 583	Lot 209	Douglas L. & Joyce M. Hall
18	3/23	WB 47 / 723	3.00	Connie Ruckman
19	3/19.1	265 / 582	7.00	Glen H. Montgomery, et al
20	3/10.1	259 / 312	0.25	James W. & Lynda S. Beatty
21	6/2	214 / 279	32.19	William R. Lynch & Dixie J. Craig
22	6/2.7	294 / 473	2.16	Randy K. Smith
23	7/5	167 / 782	176.5	Joel W. & Bonnie Ostroff
24	3/17	349 / 553	25.9	Antero Resources Corporation
25	3/11	283 / 682	43.0	Ronald Perry Gains, Perry Blackburn, Ryan Webb
26	3/18.4	286 / 473	16.58	John & Jennifer Layton



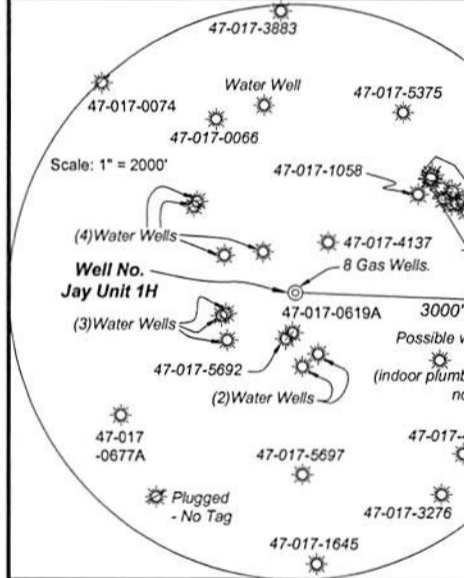
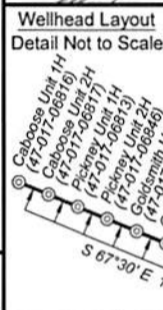
	Bearing	Dist.
L1	S 82°16' W	551.3'
L2	N 13°26' E	487.2'
L3	N 28°13' E	833.4'
L4	S 31°39' W	622.4'

Legend

- Proposed gas well
- Found corner, as noted
- Existing Well, as noted
- Creek or Drain
- 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. Jay Unit 1H Top Hole coordinates are
N: 302,237.96" Latitude: 39°19'20.80"
E: 1,630,402.51" Longitude: 80°48'23.31"
Bottom Hole coordinates are
N: 312,000.75" Latitude: 39°20'56.86"
E: 1,627,476.75" Longitude: 80°49'02.36"
UTM Zone 17, NAD 1983
Top Hole Coordinates Bottom Hole Coordinates
N: 4,352,586.486m N: 4,355,545.844m
E: 516,696.266m E: 515,755.307m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.



Note: It appears 23 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.

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

Top Hole Coordinates, As-drilled data and information was provided by Antero Resources Corporation. Allegany 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.

FILE NO: 36-30-WU-15
DRAWING NO: Jay 1H As-Drilled Well Plat
SCALE: 1" = 1200'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: CORS, Marietta, OH

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

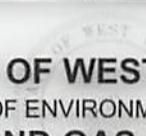
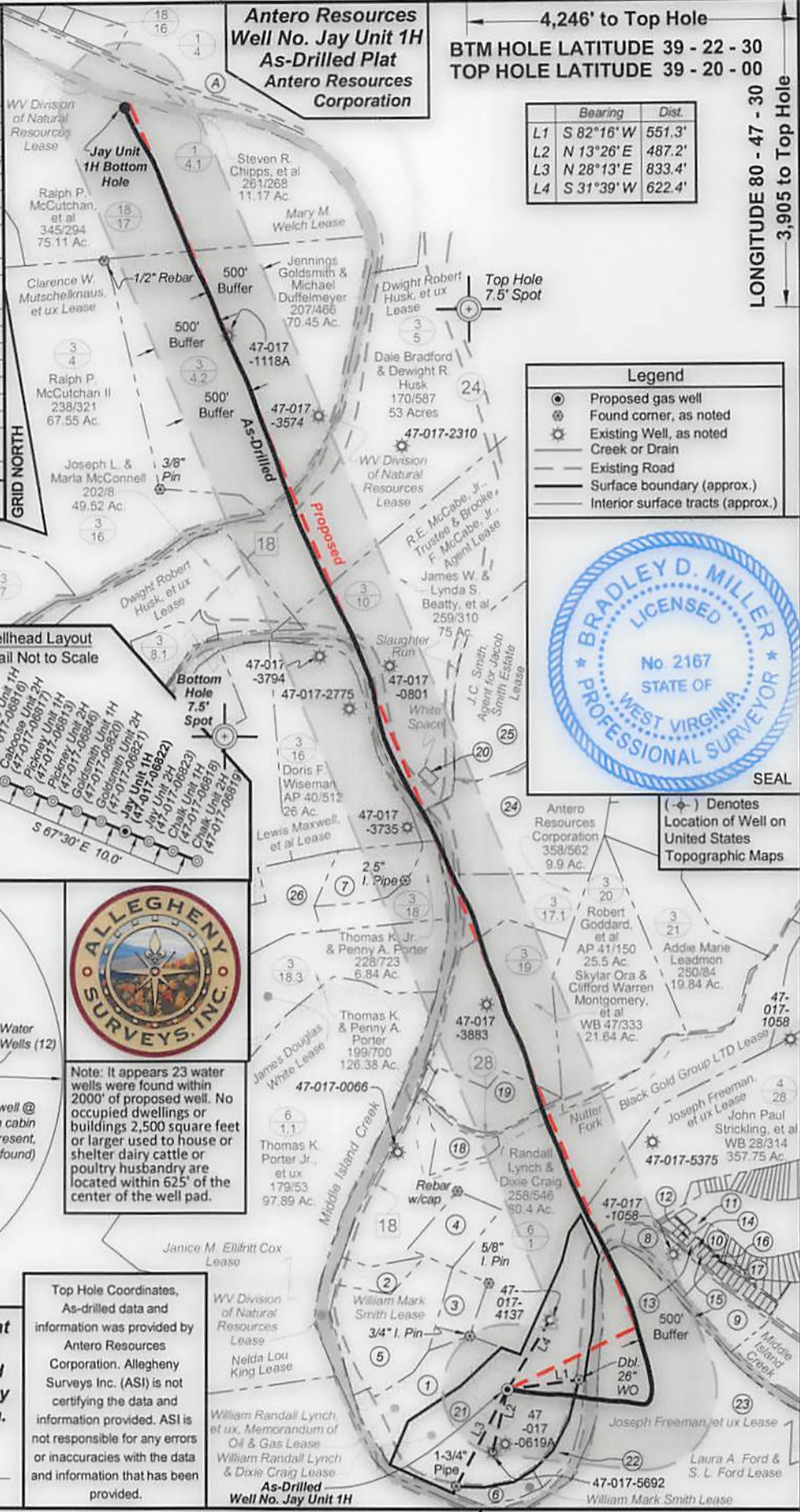
DATE: January 16 2019
Operator's Well No. Jay Unit 1H
API WELL NO
47 - 017 - 06822
STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built Grade - 843' WATERSHED: Headwaters Middle Island Creek QUADRANGLE: West Union 20.49; 80; 56.07; 105;
DISTRICT: West Union William Randall Lynch & Dixie Craig James Douglas White; Lewis Maxwell, et al; WV Div. of Natural Resource COUNTY: Doddridge 32.15; 53;
SURFACE OWNER: William Randall Lynch & Dixie Craig Dwight Robert Husk, et ux; Clarence W. Mutschelknaus, et ux ACREAGE: 32.19 82.21; 290;
ROYALTY OWNER: R.E. McCabe Jr., Trustee & Brooke F. McCabe Jr. Agent; Black Gold Group, LTD; LEASE NO: ACREAGE: 75; 150; 168; 600;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled 6,420' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 16,943' 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

TM/Par	Bk/Pg	Acres	Owner(s)
1	6/2.5	253 / 222	8.66 William Randall Lynch & Dixie Janet Craig
2	6/2.8	305 / 419	2.68 Dominion Field Services, Inc.
3	6/2.6	266 / 36	3.52 Equitrans, L.P.
4	6/1.3	305 / 416	4.68
5	6/2.4	163 / 44	14.98
6	6/2.3	197 / 659	6.00 Carol & Alfreda Painter
7	3/18.2	232 / 135	357.75 David J. & Debra S. Smith
8	6/7	AP 35 / 212	3.46 Debra L. Stout
9	7/4.2	293 / 340	4.19 Joseph D. & Brittany C. McConnell
10	29/46	- / -	Lot 231 Crystal Lake Club
11	29/46.2	302 / 278	p/b Lot 231 Ronald O. & Barbara C. Moran
12	29/90	249 / 639	Lot 204 Shaun L. & Mary K. Cass
13	29/91	256 / 408	Lot 205 Janet M. Esposito & Scarlett C. Dennison
14	29/92	260 / 127	Lot 206 James L. & Patricia Reed
15	29/93	162 / 328	Lot 207 Douglas L. & Joyce M. Hall
16	29/94	219 / 583	Lot 208 Connie Ruckman
17	29/95	219 / 583	Lot 209 Glen H. Montgomery, et al
18	3/23	WB 47 / 723	3.00 James W. & Lynda S. Beatty
19	3/19.1	265 / 582	7.00 William R. Lynch & Dixie J. Craig
20	3/10.1	259 / 312	0.25 Randy K. Smith
21	6/2	214 / 279	32.19 Joel W. & Bonnie Ostroff
22	6/2.7	294 / 473	2.16 Antero Resources Corporation
23	7/5	167 / 782	176.5 Ronald Perry Gains, Perry Blackburn, Ryan Webb
24	3/17	349 / 553	25.9 John & Jennifer Layton
25	3/11	283 / 682	43.0
26	3/18.4	286 / 473	16.58
A	Ralph Mount, et ux Lease		



Note: It appears 23 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 525' of the center of the well pad.

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.

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

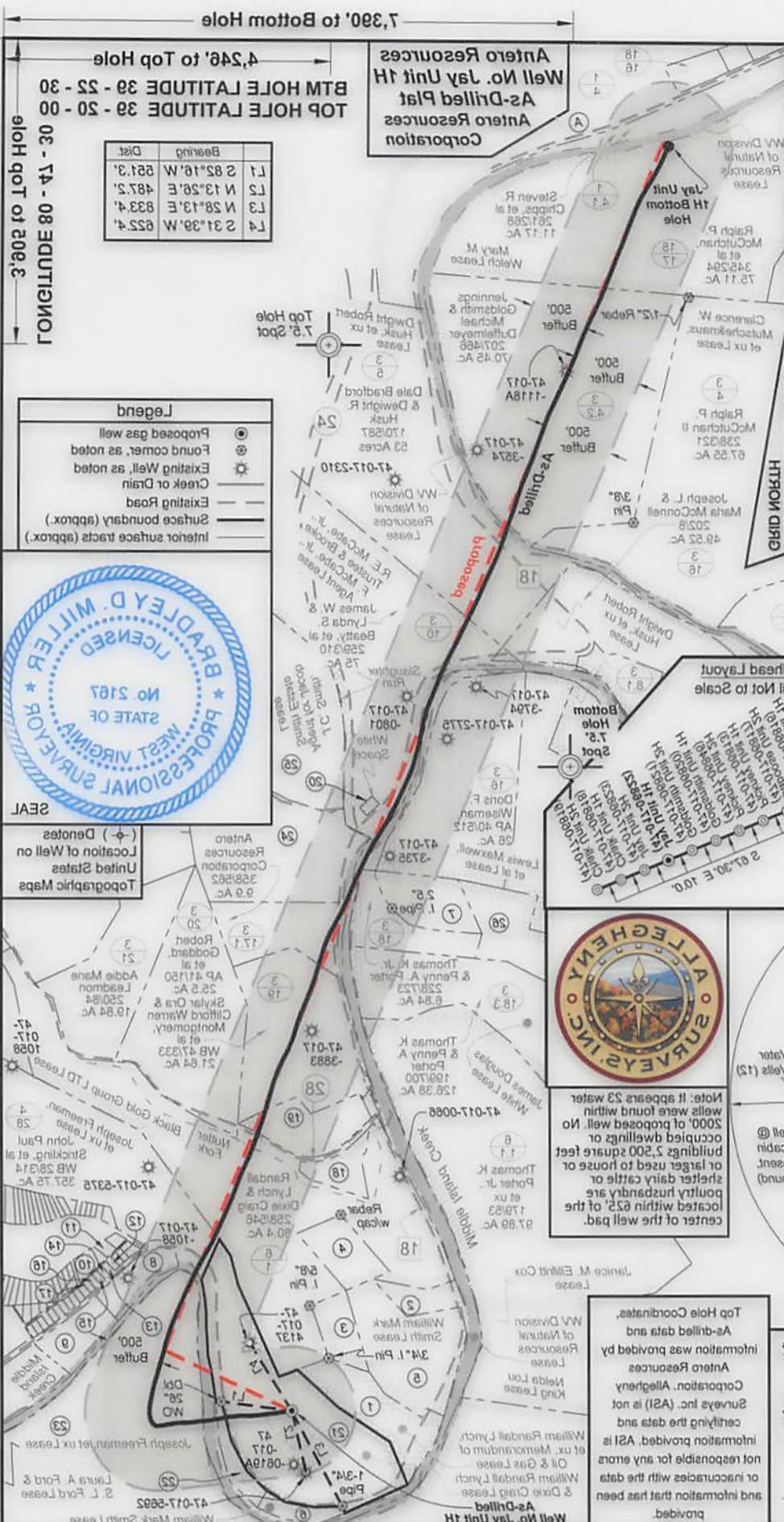
FILE NO: 36-30-WU-15
DRAWING NO: Jay 1H As-Drilled Well Plat
SCALE: 1" = 1200'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: CORS, Marietta, OH

DATE: January 16, 2019
Operator's Well No. Jay Unit 1H
API WELL NO
47 - 017 - 06822
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: As-Built Grade - 843' WATERSHED: Headwaters Middle Island Creek QUADRANGLE: West Union 20.49; 80; 56.07; 105;
DISTRICT: West Union James Douglas White; Lewis Maxwell, et al; WV Div. of Natural Resource COUNTY: Doddridge 32.15; 53;
SURFACE OWNER: William Randall Lynch & Dixie Craig Dwight Robert Husk, et ux; Clarence W. Mutschelknaus, et ux ACREAGE: 32.19 75; 150;
ROYALTY OWNER: R.E. McCabe Jr., Trustee & Brooke F. McCabe Jr. Agent; Black Gold Group, LTD; LEASE NO: ACREAGE: 168; 600;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Drilled 6,420' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 16,943' 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

BRADLEY D. MILLER
LICENSED
No. 2167
STATE OF WEST VIRGINIA
PROFESSIONAL SURVEYOR
SEAL



Owner(s)	Acres	Bk/Pg	TMF#
William Randall Lynch & Dixie Janet Craig	8.88	283 \ 222	1
Dominion Field Services, Inc.	2.88	308 \ 419	2
Editors, L.P.	4.88	308 \ 418	3
Carol & Althea Painter	4.88	187 \ 889	4
David J. & Debra S. Smith	3.87	232 \ 138	5
Joseph D. & Brittany C. McConnell	3.48	AP 38 \ 212	6
Crystal Lake Club	4.19	283 \ 340	7
Ronald O. & Barbara C. Moran	-	-	8
Shawn L. & Mary K. Cass	2.00	249 \ 839	9
Janet M. Esposito & Scott C. Dennison	2.00	280 \ 408	10
James L. & Patricia Reed	2.00	219 \ 883	11
Douglas J. & Joyce M. Hall	2.00	219 \ 883	12
Connie Ruckman	2.00	WB 47 \ 173	13
Glenn H. Montgomery, et al	2.00	288 \ 882	14
James W. & Linda S. Betty	0.25	280 \ 312	15
William R. Lynch & Dixie J. Craig	32.19	214 \ 279	16
Randy K. Smith	2.18	294 \ 473	17
Joel W. & Bonnie Ostroff	1.85	187 \ 782	18
Antero Resources Corporation	25.9	349 \ 883	19
Ronald Perry Gains Perry Blackburn, Ryan Webb	43.0	283 \ 882	20
John & Jennifer Layton	18.88	288 \ 473	21

Bearing	Dist
L1 2 82°18' W 881.3'	
L2 N 13°20' E 487.2'	
L3 N 28°13' E 833.4'	
L4 2 21°39' W 822.4'	

Legend

- Proposed gas well
- Found corner, as noted
- Existing Well, as noted
- Creek or Drain
- Existing Road
- Surface boundary (approx.)
- Inferior surface tracts (approx.)

BRADLEY D. MILLER
PROFESSIONAL SURVEYOR
 No. 2187
 STATE OF WEST VIRGINIA
 LICENSED

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

DATE: January 16 2019

Operators Well No. Jay Unit 1H

API WELL NO 47 - 017 - 08822

STATE COUNTY PERMIT

DESIGNATED AGENT: Diana Stamber - CT Corporation System
 ADDRESS: 1615 Wynkoop Street, Denver, CO 80202
 WELL OPERATOR: Antero Resources Corporation

PROPOSED WORK: PLUG AND ABANDON CLEAN OUT AND REPLUG OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As-Dilled

ROYALTY OWNER: R.E. McCabe Jr., Tunstee & Brooke J. McCabe Jr. Agent; Black Gold Group, LTD. LEASE NO: _____ ACREAGE: 168; 600;
 SURFACE OWNER: Dixie Craig, William Randall Lynch & Joseph Freeman, et ux; Clarence W. Mutschelknaus, et ux
 DISTRICT: West Union
 LOCATION: ELEVATION: As-Built Grade - 843' WATERSHED: Headwaters Middle Island Creek QUADRANGLE: West Union 50.49; 80;
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL

PROVEN SOURCE OF ELEVATION: CORN Maletta, OH
 MINIMUM DEGREE OF ACCURACY: Submeter
 SCALE: 1" = 1200'
 DRAWING NO: Jay 1H As-Dilled Well Plat
 FILE NO: 38-30-WU-15

Top Hole Coordinates:
 As-dilled data and information was provided by Antero Resources Corporation. Allegany Survey, 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.

Wellhead Layout Detail Not to Scale
 Bottom Hole 7.5 Spot
 Note: It appears 23 water wells were found within 2000' of proposed well. NO occupied dwellings or larger used for house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.

ALLEGHENY SURVEYS, INC.

Notes:
 UTM Zone 17 NAD 1983
 Top Hole Coordinates Bottom Hole Coordinates
 N: 4,352,588.88m E: 518,755.307m
 N: 4,352,588.88m E: 518,755.307m
 E: 1,824,478.75' Longitude: 80°48'02.38"
 N: 312,000.75' Longitude: 39°20'58.88"
 Bottom Hole coordinates are E: 1,830,402.51' Longitude: 80°48'23.31"
 Well No. Jay Unit 1H Top Hole coordinates are based upon Differential GPS Measurements.
 West Virginia Coordinate System of 1927, North Zone

Well No. Jay Unit 1H

Scale: 1" = 2000'

Plugged - No Tag
 47-017-1845
 47-017-3278
 47-017-5897
 47-017-4184
 47-017-5892
 47-017-5892
 47-017-0819
 3000'
 Possible water well @ foam cabin (indoor plumbing present, no well found)
 8 Gas Wells
 4 Water Wells
 Water Well
 47-017-0074
 47-017-0088
 47-017-1088
 47-017-2378
 47-017-3883

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, P. S. 2187