WR-35
Rev. 8/23/13

Page ___ of ___

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

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API 47 - 095 - 02362 County Tyler District Centerville
Quad Shirley 7.5' Pad Name Edna Monroe Pad Field/Pool Name ---
Farm name Edna Monroe Well Number Bead 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 4363687m	Easting 510917m
Landing Point of Curve	Northing 4363049.029m	Easting 511179.122m
Bottom Hole	Northing 4360241m	Easting 512173m

Elevation (ft) 1044' 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 07/22/2016 Date drilling commenced 09/13/2016 Date drilling ceased 02/21/2017
Date completion activities began 05/05/2017 Date completion activities ceased 09/19/2017
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 337' 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

Reviewed by:

WR-35
Rev. 8/23/13

Page ___ of ___

API 47- 095 - 02362 Farm name Edna Monroe Well number Bead 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"	532'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2530'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"	5-1/2"	18670'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6691'		4.7#, N-80		
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	632 sx	15.6	1.19	752	0	8 Hrs.
Coal							
Intermediate 1	Class A	989 sx	15.6	1.18	1167	0	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	801 sx (Lead), 1710 sx (Tail)	13.4 (Lead), 15.2 (Tail)	1.44 (Lead), 1.87 (Tail)	4351	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 18670' MD, 6563' TVD (BHL), 6566' TVD (Deepest point drilled) Loggers TD (ft) 18655' MD

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

Plug back procedure N/A

Kick off depth (ft) 5950'

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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

WR-35
Rev. 8/23/13

Page ___ of ___

API 47- 095 - 02362 Farm name Edna Monroe Well number Bead 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**

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)

*** PLEASE SEE ATTACHED EXHIBIT 2**

Please insert additional pages as applicable.

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JAN 22 2018

WV Department of
Environmental Protection

WR-35
Rev. 8/23/13

Page ___ of ___

API 47- 095 - 02362 Farm name Edna Monroe Well number Bead Unit 2H

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6479' (Top)	TVD	6729' (Top)	MD

Please insert additional pages as applicable.

GAS TEST ☐ Build up ☐ Drawdown ■ Open Flow OIL TEST ■ Flow ☐ Pump

SHUT-IN PRESSURE Surface 4100 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	9729 mcfpd	175 bpd	-- bpd	19 bpd	☐ Estimated ■ Orifice ☐ Pilot

LITHOLOGY/ FORMATION NAME	TOP DEPTH IN FT TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H_2S, ETC)
	0		0		

*** PLEASE SEE ATTACHED EXHIBIT 3**

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 Pro Oilfield Services LLC
Address 3141 Pulaski Rd City New Castle State PA Zip 16105

Cementing Company Allied Oil & Gas Services, LLC
Address 1036 East Main Street City Bridgeport State WV Zip 26330

Stimulating Company Halliburton
Address 121 Champion Way Suite 200 City Cannonsburg State PA Zip 15317

Please insert additional pages as applicable.

Completed by Samantha Klaas Telephone 303-357-6759
Signature Title Permitting Agent Date 01/19/2018

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

API 47-095-02362 Farm Name Edna Monroe Well Number Bead Unit 2H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	5/5/2017	18401	18570	60	Marcellus
2	5/30/2017	18200	18369	60	Marcellus
3	5/31/2017	18000	18169	60	Marcellus
4	5/31/2017	17799	17968	60	Marcellus
5	6/1/2017	17599	17768	60	Marcellus
6	6/1/2017	17398	17568	60	Marcellus
7	6/2/2017	17198	17367	60	Marcellus
8	6/5/2017	16998	17167	60	Marcellus
9	6/6/2017	16797	16966	60	Marcellus
10	6/6/2017	16597	16766	60	Marcellus
11	6/6/2017	16396	16565	60	Marcellus
12	6/7/2017	16196	16365	60	Marcellus
13	6/8/2017	15995	16164	60	Marcellus
14	6/8/2017	15795	15964	60	Marcellus
15	6/8/2017	15594	15763	60	Marcellus
16	6/9/2017	15394	15563	60	Marcellus
17	6/10/2017	15193	15362	60	Marcellus
18	6/10/2017	14993	15162	60	Marcellus
19	6/11/2017	14792	14962	60	Marcellus
20	6/11/2017	14592	14761	60	Marcellus
21	6/11/2017	14392	14561	60	Marcellus
22	6/12/2017	14191	14360	60	Marcellus
23	6/13/2017	13991	14160	60	Marcellus
24	6/13/2017	13790	13959	60	Marcellus
25	6/13/2017	13590	13759	60	Marcellus
26	6/14/2017	13389	13558	60	Marcellus
27	6/14/2017	13189	13358	60	Marcellus
28	6/14/2017	12988	13157	60	Marcellus
29	6/15/2017	12788	12957	60	Marcellus
30	6/15/2017	12587	12756	60	Marcellus
31	6/15/2017	12387	12556	60	Marcellus
32	6/16/2017	12186	12356	60	Marcellus
33	6/16/2017	11986	12155	60	Marcellus
34	6/17/2017	11786	11955	60	Marcellus
35	6/17/2017	11585	11754	60	Marcellus
36	6/18/2017	11385	11554	60	Marcellus
37	6/18/2017	11184	11353	60	Marcellus
38	6/18/2017	10984	11153	60	Marcellus
39	6/19/2017	10783	10952	60	Marcellus
40	6/19/2017	10583	10752	60	Marcellus
41	6/20/2017	10382	10551	60	Marcellus
42	6/20/2017	10182	10351	60	Marcellus
43	6/20/2017	9981	10150	60	Marcellus
44	6/21/2017	9781	9950	60	Marcellus
45	6/21/2017	9581	9750	60	Marcellus
46	6/21/2017	9380	9549	60	Marcellus
47	6/22/2017	9180	9349	60	Marcellus
48	6/22/2017	8979	9148	60	Marcellus
49	6/22/2017	8779	8948	60	Marcellus
50	6/23/2017	8578	8747	60	Marcellus
51	6/24/2017	8378	8547	60	Marcellus
52	6/24/2017	8177	8346	60	Marcellus
53	6/25/2017	7977	8146	60	Marcellus
54	6/25/2017	7776	7945	60	Marcellus
55	6/25/2017	7576	7745	60	Marcellus
56	6/25/2017	7375	7545	60	Marcellus
57	6/26/2017	7175	7344	60	Marcellus
58	6/26/2017	6975	7144	60	Marcellus
59	6/26/2017	6774	6943	60	Marcellus

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API 47-095-02362 Farm Name Edna Monroe Well Number Bead Unit 2H

EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	5/30/2017	73.1	6816	5084	3237	176380	8533	N/A
2	5/30/2017	76.3	7339	4982	3770	190293	8978	N/A
3	5/31/2017	69.6	7689	5156	4929	189735	12996	N/A
4	5/31/2017	71.4	7601	5152	3699	190240	10406	N/A
5	6/1/2017	75.9	7210	5411	3143	188680	9050	N/A
6	6/1/2017	77.9	7233	5413	3136	188548	8776	N/A
7	6/2/2017	76.8	7127	5617	3349	190448	8821	N/A
8	6/5/2017	77.7	7457	5644	3595	187308	10330	N/A
9	6/6/2017	76.8	7106	5573	4159	189828	8731	N/A
10	6/6/2017	79.3	6906	5200	4077	182500	8848	N/A
11	6/6/2017	74.3	6972	5420	3071	193684	10404	N/A
12	6/7/2017	76.1	6931	5639	3244	210800	9110	N/A
13	6/8/2017	72.9	6993	5483	3161	196805	9156	N/A
14	6/8/2017	71.7	6846	5418	3251	187780	8985	N/A
15	6/8/2017	75.5	6752	5669	3392	192500	8912	N/A
16	6/9/2017	73.4	6475	5513	3648	175900	9007	N/A
17	6/10/2017	72.4	6581	5762	3339	224990	10549	N/A
18	6/10/2017	75.7	6678	5926	4313	190400	8929	N/A
19	6/11/2017	67.3	7337	5292	5292	191500	14512	N/A
20	6/11/2017	80.7	7582	5490	3952	203600	10840	N/A
21	6/11/2017	68.9	7295	5560	3665	188630	9183	N/A
22	6/12/2017	68.9	7122	5183	3877	186400	11550	N/A
23	6/13/2017	64.1	7082	5137	3173	186830	11275	N/A
24	6/13/2017	65.5	7663	5473	5085	129900	11937	N/A
25	6/13/2017	71.2	6795	4943	4477	177825	9668	N/A
26	6/14/2017	74.9	6800	5221	3394	183800	8862	N/A
27	6/14/2017	72.4	6584	5224	3506	170670	8489	N/A
28	6/14/2017	68.9	7127	5403	3741	173447	10375	N/A
29	6/15/2017	76.3	6728	5584	3349	166140	8116	N/A
30	6/15/2017	75.6	6428	5392	3038	165950	8565	N/A
31	6/15/2017	72.9	6459	5234	4129	165414	10152	N/A
32	6/16/2017	69.9	7295	5193	4221	170730	12686	N/A
33	6/16/2017	71.8	7317	5177	3491	171000	10624	N/A
34	6/17/2017	69.3	7491	5368	4073	173720	11622	N/A
35	6/17/2017	73.0	6905	5113	3849	168837	10769	N/A
36	6/18/2017	75.0	6704	5304	3331	164640	8600	N/A
37	6/18/2017	76.2	6729	5659	6117	170530	8657	N/A
38	6/18/2017	71.4	6727	5240	4009	164649	8363	N/A
39	6/19/2017	78.2	6609	5198	3318	166680	8204	N/A
40	6/19/2017	73.7	6757	5088	5215	165140	8865	N/A
41	6/20/2017	74.0	6626	5153	3512	165770	9333	N/A
42	6/20/2017	71.7	7118	5087	3130	166116	10914	N/A
43	6/20/2017	77.1	6654	5196	3289	172220	9214	N/A
44	6/21/2017	76.2	6438	5052	4325	173432	8907	N/A
45	6/21/2017	75.5	6623	5135	3448	170474	8486	N/A
46	6/21/2017	77.2	6501	5579	3709	168062	8733	N/A
47	6/22/2017	53.3	7923	5416	5172	168422	13988	N/A
48	6/22/2017	79.0	7017	5125	3986	169195	9416	N/A
49	6/22/2017	75.5	6959	5184	4729	172338	8679	N/A
50	6/23/2017	74.1	7189	5122	5923	166014	10232	N/A
51	6/24/2017	79.0	6715	5094	3060	179622	9042	N/A
52	6/24/2017	78.1	6500	5071	3606	166168	9787	N/A
53	6/25/2017	77.6	6347	5294	3434	163549	8455	N/A
54	6/25/2017	76.5	6098	5361	3454	170724	8499	N/A
55	6/25/2017	77.6	6182	5237	3531	188156	8540	N/A
56	6/25/2017	76.9	6148	5398	3781	171612	8495	N/A
57	6/26/2017	76.6	6009	5045	3456	169913	8617	N/A
58	6/26/2017	77.7	6156	5682	3276	171368	8146	N/A
59	6/26/2017	77.9	6197	6623	3402	164951	8466	N/A
	AVG=	74.0	6,875	5,346	3,814	10,490,957	568,383	TOTAL

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API 47-095-02362 Farm Name Edna Monroe Well Number Bead Unit 2H

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
Fresh Water	337'	N/A	337'	N/A
Sandy Siltstone	est. 0	225	est. 0	225
Sandstone	est. 225	325	est. 225	325
Shale/Siltstone	est. 325	605	est. 325	605
Silty Limestone	est. 605	805	est. 605	805
Sandy Siltstone	est. 805	1025	est. 805	1025
Silty Shale	est. 1025	1065	est. 1025	1065
Sandstone	est. 1065	1445	est. 1065	1445
Sandy Shale	est. 1445	1545	est. 1445	1545
Shale/Sandstone	est. 1545	1705	est. 1545	1705
Sandstone/Siltstone	est. 1705	1745	est. 1705	1745
Sandstone	est. 1745	1810	est. 1745	1810
Sandy Shale	est. 1810	1848	est. 1810	1849
Big Lime	1863	1993	1864	1993
Big Injun	1993	2538	1993	2539
Gantz Sand	2538	2652	2539	2653
Fifty Foot Sandstone	2652	2773	2653	2774
Gordon	2773	3084	2774	3086
Fifth Sandstone	3084	3148	3086	3149
Bayard	3148	3503	3149	3504
Warren	3503	3900	3504	4208
Speechley	3900	4202	4208	4208
Baltown	4202	4576	4208	4590
Bradford	4576	5023	4590	5045
Benson	5023	5281	5045	5308
Alexander	5281	5426	5308	5456
Elk	5426	5835	5456	5871
Rhinestreet	5835	6166	5871	6217
Sycamore	6141	6312	6192	6408
Middlesex	6312	6416	6408	6584
Burkett	6416	6447	6584	6646
Tully	6447	6479	6646	6729
Marcellus	6479	NA	6729	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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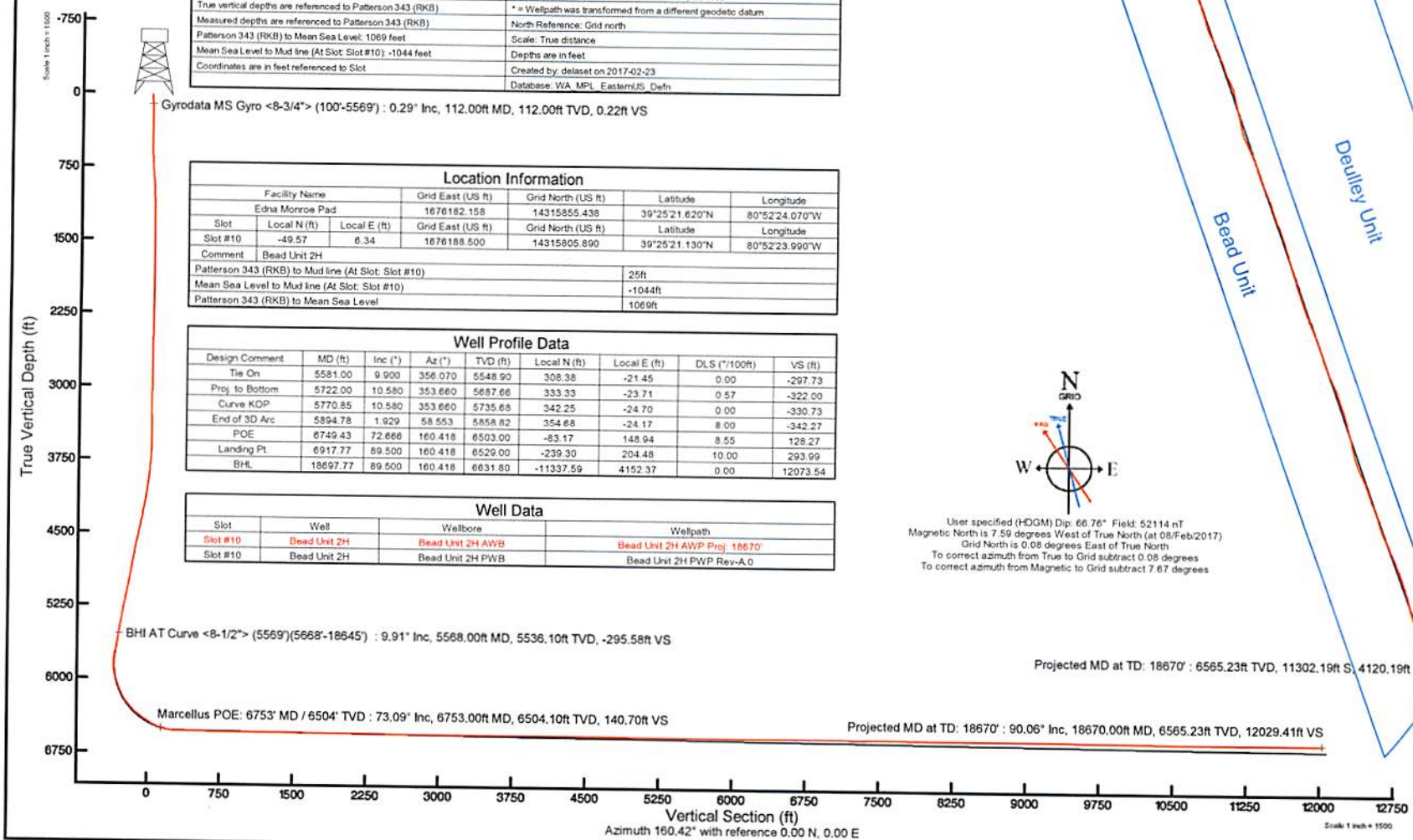
ANTERO RESOURCES CORPORATION

Location: Tyler County, WV
Field: Tyler
Facility: Edna Monroe Pad

Slot: Slot #10
Well: Bead Unit 2H
Wellbore: Bead Unit 2H PWB

API: 47-095-02362-0000
BHI Job #: 8397836
Rig: Patterson 343
Duration: 02/12/2017-02/16/2017

Plot reference wellpath is Bead Unit 2H PWP Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Patterson 343 (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to Patterson 343 (RKB)	North Reference: Grid north
Patterson 343 (RKB) to Mean Sea Level: 1069 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot #10): -1044 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: delaset on 2017-02-23
	Database: WA_MPL_EasternUS_Defn



Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Edna Monroe Pad			1676182.158	14315855.438	39°25'21.620"N	80°52'24.070"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #10	-49.57	6.34	1676188.500	14315805.890	39°25'21.130"N	80°52'23.990"W
Comment	Bead Unit 2H					

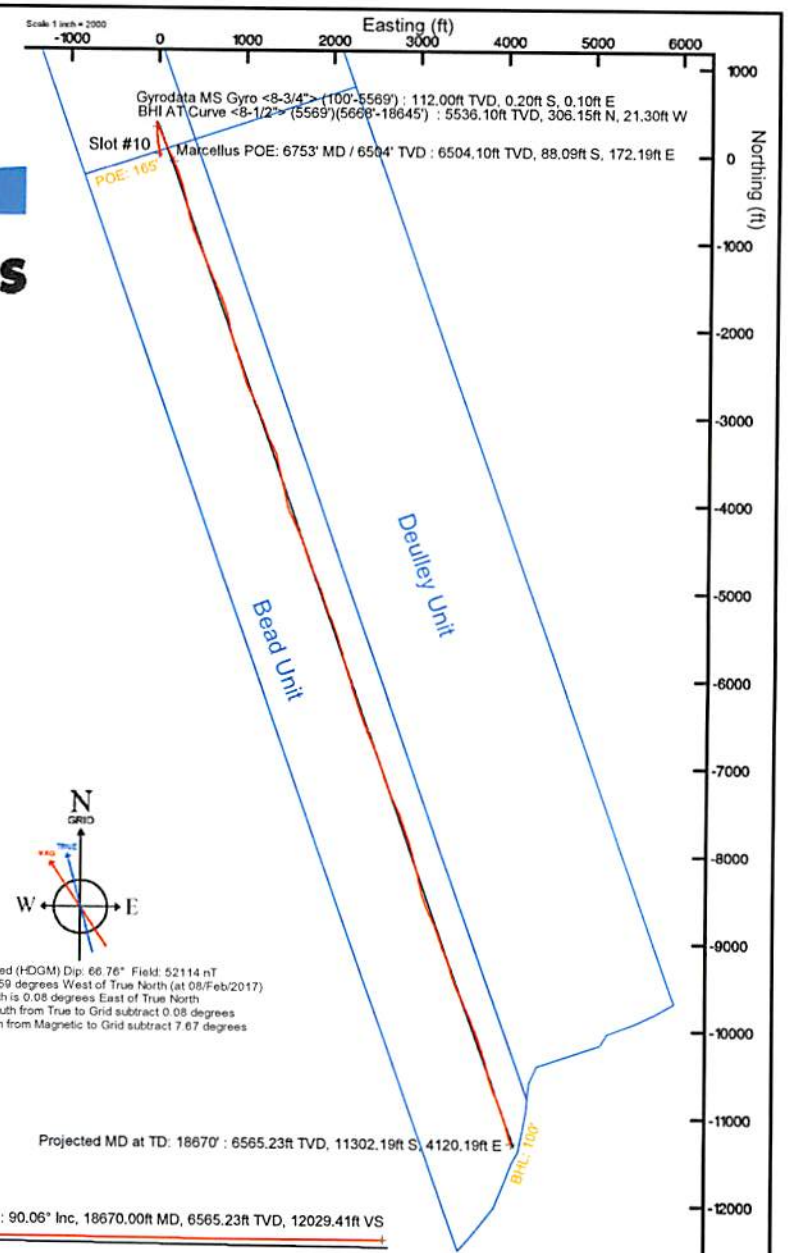
Patterson 343 (RKB) to Mud line (At Slot: Slot #10)	25ft
Mean Sea Level to Mud line (At Slot: Slot #10)	-1044ft
Patterson 343 (RKB) to Mean Sea Level	1069ft

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	5581.00	9.900	356.070	5548.90	308.38	-21.45	0.00	-297.73
Proj. to Bottom	5722.00	10.580	353.660	5687.66	333.33	-23.71	0.57	-322.00
Curve KOP	5770.85	10.580	353.660	5735.68	342.25	-24.70	0.00	-330.73
End of 3D Arc	5894.78	1.929	58.553	5858.82	354.68	-24.17	8.00	-342.27
POE	6749.43	72.666	160.418	6503.00	-83.17	148.94	8.55	128.27
Landing Pt.	6917.77	89.500	160.418	6529.00	-239.30	204.48	10.00	293.99
BHL	18697.77	89.500	160.418	6631.80	-11337.59	4152.37	0.00	12073.54

Well Data

Slot	Well	Wellbore	Wellpath
Slot #10	Bead Unit 2H	Bead Unit 2H AWB	Bead Unit 2H AWP Proj: 18670'
Slot #10	Bead Unit 2H	Bead Unit 2H PWB	Bead Unit 2H PWP Rev-A.0



Actual Wellpath Report

Bead Unit 2H AWP Proj: 18670'

REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Tyler County, WV	Well	Bead Unit 2H
Field	Tyler	Wellbore	Bead Unit 2H AWB
Facility	Edna Monroe Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Delaset
Scale	0.999601	Report Generated	23/Feb/2017 at 15:24
Convergence at slot	0.09° East	Database/Source file	WA_MPL_EasternUS_Defn/Bead_Unit_2H_AWP_Proj__18670_.xml

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-49.57	6.34	1676188.50	14315805.89	39°25'21.130"N	80°52'23.990"W
Facility Reference Pt			1676182.16	14315855.44	39°25'21.620"N	80°52'24.070"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Patterson 343 (RKB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Patterson 343 (RKB) to Mean Sea Level	1069.00ft
Vertical Reference Pt	Patterson 343 (RKB)	Patterson 343 (RKB) to Mud Line at Slot (Slot #10)	25.00ft
MD Reference Pt	Patterson 343 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	160.42°

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Actual Wellpath Report

Bead Unit 2H AWP Proj: 18670'

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Tyler County, WV	Well	Bead Unit 2H
Field	Tyler	Wellbore	Bead Unit 2H AWB
Facility	Edna Monroe Pad		

WELLPATH DATA (216 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
0.00†	0.000	153.970	0.00	0.00	0.00	0.00	1676188.50	14315805.89	39°25'21.130"N	80°52'23.990"W	0.00	0.000	0.00	0.00	0.00	
25.00	0.000	153.970	25.00	0.00	0.00	0.00	1676188.50	14315805.89	39°25'21.130"N	80°52'23.990"W	0.00	0.000	0.00	0.00	0.00	
112.00	0.290	153.970	112.00	0.22	-0.20	0.10	1676188.60	14315805.69	39°25'21.128"N	80°52'23.989"W	0.22	153.970	0.33	0.33	176.98	Gyrodata MS Gyro <8-3/4"> (100'-5569')
212.00	0.390	168.460	212.00	0.81	-0.76	0.28	1676188.78	14315805.13	39°25'21.123"N	80°52'23.987"W	0.81	160.025	0.13	0.10	14.49	
312.00	0.480	182.650	312.00	1.53	-1.51	0.32	1676188.82	14315804.38	39°25'21.115"N	80°52'23.986"W	1.55	167.877	0.14	0.09	14.19	
412.00	0.500	173.380	411.99	2.34	-2.36	0.36	1676188.86	14315803.53	39°25'21.107"N	80°52'23.986"W	2.39	171.444	0.08	0.02	-9.27	
512.00	0.520	168.310	511.99	3.22	-3.24	0.50	1676189.00	14315802.65	39°25'21.098"N	80°52'23.984"W	3.28	171.268	0.05	0.02	-5.07	
612.00	1.400	140.720	611.97	4.82	-4.63	1.36	1676189.86	14315801.26	39°25'21.084"N	80°52'23.973"W	4.83	163.597	0.97	0.88	-27.59	
712.00	4.030	141.460	711.85	9.29	-8.32	4.33	1676192.82	14315797.57	39°25'21.048"N	80°52'23.935"W	9.38	152.540	2.63	2.63	0.74	
812.00	4.300	140.010	811.59	16.13	-13.95	8.93	1676197.42	14315791.95	39°25'20.992"N	80°52'23.877"W	16.56	147.381	0.29	0.27	-1.45	
912.00	4.260	140.680	911.31	23.14	-19.69	13.69	1676202.18	14315786.21	39°25'20.935"N	80°52'23.816"W	23.98	145.196	0.06	-0.04	0.67	
1012.00	2.120	138.620	1011.15	28.35	-23.95	17.26	1676205.76	14315781.95	39°25'20.893"N	80°52'23.770"W	29.53	144.217	2.14	-2.14	-2.06	
1112.00	0.700	123.440	1111.12	30.56	-25.68	19.00	1676207.49	14315780.22	39°25'20.876"N	80°52'23.748"W	31.94	143.505	1.46	-1.42	-15.18	
1212.00	0.350	111.940	1211.11	31.25	-26.13	19.79	1676208.28	14315779.77	39°25'20.871"N	80°52'23.738"W	32.78	142.859	0.36	-0.35	-11.50	
1312.00	0.190	343.530	1311.11	31.29	-26.08	20.03	1676208.52	14315779.82	39°25'20.872"N	80°52'23.735"W	32.88	142.484	0.49	-0.16	-128.41	
1412.00	0.210	335.710	1411.11	30.94	-25.76	19.90	1676208.40	14315780.14	39°25'20.875"N	80°52'23.737"W	32.55	142.305	0.03	0.02	-7.82	
1512.00	0.190	301.130	1511.11	30.63	-25.50	19.69	1676208.18	14315780.40	39°25'20.878"N	80°52'23.740"W	32.22	142.336	0.12	-0.02	-34.58	
1612.00	0.210	237.710	1611.11	30.54	-25.52	19.39	1676207.88	14315780.38	39°25'20.878"N	80°52'23.743"W	32.05	142.770	0.21	0.02	-63.42	
1712.00	0.190	208.570	1711.11	30.69	-25.76	19.16	1676207.65	14315780.14	39°25'20.875"N	80°52'23.746"W	32.10	143.365	0.10	-0.02	-29.14	
1812.00	0.360	150.960	1811.11	31.11	-26.18	19.23	1676207.72	14315779.72	39°25'20.871"N	80°52'23.745"W	32.48	143.704	0.30	0.17	-57.61	
1912.00	0.760	116.110	1911.10	31.90	-26.75	19.98	1676208.47	14315779.15	39°25'20.865"N	80°52'23.736"W	33.38	143.245	0.51	0.40	-34.85	
2012.00	0.980	106.450	2011.09	32.87	-27.28	21.39	1676209.88	14315778.62	39°25'20.860"N	80°52'23.718"W	34.67	141.898	0.26	0.22	-9.66	
2112.00	0.970	101.510	2111.08	33.81	-27.69	23.04	1676211.53	14315778.21	39°25'20.856"N	80°52'23.697"W	36.02	140.237	0.08	-0.01	-4.94	
2212.00	0.830	44.780	2211.07	33.94	-27.35	24.38	1676212.87	14315778.55	39°25'20.859"N	80°52'23.680"W	36.64	138.281	0.86	-0.14	-56.73	
2312.00	0.810	11.940	2311.06	33.02	-26.14	25.04	1676213.53	14315779.76	39°25'20.871"N	80°52'23.671"W	36.20	136.235	0.46	-0.02	-32.84	
2412.00	1.430	291.630	2411.04	31.60	-24.99	24.02	1676212.51	14315780.91	39°25'20.883"N	80°52'23.684"W	34.66	136.129	1.52	0.62	-80.31	
2512.00	1.670	286.140	2511.00	29.92	-24.12	21.46	1676209.96	14315781.77	39°25'20.891"N	80°52'23.717"W	32.29	138.339	0.28	0.24	-5.49	
2612.00	1.820	279.830	2610.96	28.29	-23.45	18.50	1676206.99	14315782.45	39°25'20.898"N	80°52'23.755"W	29.87	141.728	0.24	0.15	-6.31	
2712.00	1.590	279.170	2710.91	26.85	-22.96	15.57	1676204.06	14315782.94	39°25'20.903"N	80°52'23.792"W	27.74	145.860	0.23	-0.23	-0.66	
2812.00	0.520	271.370	2810.90	26.02	-22.72	13.74	1676202.24	14315783.17	39°25'20.905"N	80°52'23.815"W	26.56	148.837	1.08	-1.07	-7.80	

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Area	Tyler County, WV	Well	Bead Unit 2H
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Facility	Edna Monroe Pad		

WELLPATH DATA (216 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
2912.00	0.520	271.570	2910.89	25.69	-22.70	12.84	1676201.33	14315783.20	39°25'20.905"N	80°52'23.827"W	26.08	150.516	0.00	0.00	0.20	
3012.00	0.550	270.430	3010.89	25.36	-22.69	11.90	1676200.40	14315783.21	39°25'20.906"N	80°52'23.839"W	25.62	152.316	0.03	0.03	-1.14	
3112.00	0.560	273.380	3110.88	25.01	-22.65	10.93	1676199.43	14315783.25	39°25'20.906"N	80°52'23.851"W	25.15	154.234	0.03	0.01	2.95	
3212.00	0.540	271.880	3210.88	24.64	-22.61	9.98	1676198.47	14315783.29	39°25'20.906"N	80°52'23.863"W	24.71	156.192	0.02	-0.02	-1.50	
3312.00	0.860	145.310	3310.87	25.20	-23.21	9.93	1676198.43	14315782.69	39°25'20.900"N	80°52'23.864"W	25.25	156.834	1.26	0.32	-126.57	
3412.00	0.860	138.250	3410.86	26.62	-24.39	10.86	1676199.35	14315781.51	39°25'20.889"N	80°52'23.852"W	26.70	155.999	0.11	0.00	-7.06	
3512.00	0.870	137.200	3510.85	28.01	-25.50	11.87	1676200.37	14315780.40	39°25'20.878"N	80°52'23.839"W	28.13	155.035	0.02	0.01	-1.05	
3612.00	2.000	16.420	3610.83	27.29	-24.39	12.88	1676201.38	14315781.51	39°25'20.889"N	80°52'23.826"W	27.58	152.154	2.56	1.13	-120.78	
3712.00	4.030	3.320	3710.69	22.64	-19.20	13.58	1676202.07	14315786.69	39°25'20.940"N	80°52'23.817"W	23.52	144.735	2.13	2.03	-13.10	
3812.00	5.150	0.030	3810.37	15.18	-11.21	13.79	1676202.28	14315794.69	39°25'21.019"N	80°52'23.815"W	17.77	129.112	1.15	1.12	-3.29	
3912.00	6.780	359.870	3909.82	5.39	-0.82	13.77	1676202.27	14315805.07	39°25'21.122"N	80°52'23.815"W	13.80	93.392	1.63	1.63	-0.16	
4012.00	7.690	356.580	4009.03	-6.61	11.77	13.36	1676201.86	14315817.65	39°25'21.246"N	80°52'23.820"W	17.80	48.636	1.00	0.91	-3.29	
4112.00	8.980	347.170	4107.97	-20.79	26.06	11.23	1676199.73	14315831.93	39°25'21.387"N	80°52'23.846"W	28.37	23.316	1.87	1.29	-9.41	
4212.00	10.460	345.080	4206.53	-37.58	42.44	7.16	1676195.66	14315848.31	39°25'21.549"N	80°52'23.898"W	43.04	9.576	1.52	1.48	-2.09	
4312.00	11.350	346.350	4304.73	-56.42	60.77	2.50	1676191.00	14315866.64	39°25'21.731"N	80°52'23.957"W	60.82	2.356	0.92	0.89	1.27	
4412.00	11.920	346.570	4402.67	-76.47	80.38	-2.22	1676186.28	14315886.24	39°25'21.924"N	80°52'24.017"W	80.41	358.417	0.57	0.57	0.22	
4512.00	12.550	347.930	4500.40	-97.51	101.05	-6.89	1676181.61	14315906.90	39°25'22.129"N	80°52'24.076"W	101.28	356.098	0.69	0.63	1.36	
4612.00	12.020	353.080	4598.11	-118.45	122.01	-10.42	1676178.09	14315927.85	39°25'22.336"N	80°52'24.121"W	122.45	355.120	1.22	-0.53	5.15	
4712.00	10.760	357.980	4696.14	-137.51	141.68	-12.00	1676176.50	14315947.51	39°25'22.530"N	80°52'24.140"W	142.18	355.158	1.59	-1.26	4.90	
4812.00	10.890	357.600	4794.36	-155.43	160.44	-12.73	1676175.78	14315966.27	39°25'22.716"N	80°52'24.149"W	160.95	355.465	0.15	0.13	-0.38	
4912.00	10.800	355.730	4892.58	-173.49	179.22	-13.82	1676174.69	14315985.04	39°25'22.902"N	80°52'24.163"W	179.76	355.591	0.36	-0.09	-1.87	
5012.00	11.340	355.730	4990.72	-192.01	198.37	-15.25	1676173.26	14316004.18	39°25'23.091"N	80°52'24.181"W	198.96	355.604	0.54	0.54	0.00	
5112.00	11.900	355.400	5088.67	-211.45	218.45	-16.81	1676171.70	14316024.26	39°25'23.289"N	80°52'24.200"W	219.10	355.600	0.56	0.56	-0.33	
5212.00	12.060	356.140	5186.49	-231.47	239.15	-18.34	1676170.17	14316044.95	39°25'23.494"N	80°52'24.219"W	239.86	355.615	0.22	0.16	0.74	
5312.00	11.100	358.240	5284.45	-250.69	259.20	-19.34	1676169.17	14316064.99	39°25'23.692"N	80°52'24.232"W	259.92	355.733	1.05	-0.96	2.10	
5412.00	11.010	358.300	5382.60	-268.94	278.37	-19.92	1676168.59	14316084.14	39°25'23.882"N	80°52'24.239"W	279.08	355.908	0.09	-0.09	0.06	
5512.00	9.930	356.690	5480.93	-286.31	296.52	-20.70	1676167.81	14316102.29	39°25'24.061"N	80°52'24.248"W	297.24	356.007	1.12	-1.08	-1.61	
5568.00†	9.906	356.187	5536.10	-295.58	306.15	-21.30	1676167.21	14316111.91	39°25'24.156"N	80°52'24.256"W	306.88	356.021	0.16	-0.04	-0.90	BHI AT Curve <8-1/2"> (5569')(5668'-18645')
5581.00	9.900	356.070	5548.90	-297.73	308.38	-21.45	1676167.06	14316114.14	39°25'24.178"N	80°52'24.258"W	309.12	356.022	0.16	-0.04	-0.90	
5668.00	11.360	352.330	5634.41	-313.32	324.33	-23.10	1676165.41	14316130.09	39°25'24.336"N	80°52'24.279"W	325.15	355.925	1.86	1.68	-4.30	

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5715.00	12.160	351.080	5680.42	-322.71	333.81	-24.49	1676164.02	14316139.56	39°25'24.430"N	80°52'24.296"W	334.70	355.804	1.79	1.70	-2.66	
5762.00	10.060	348.850	5726.54	-331.64	342.73	-26.05	1676162.46	14316148.48	39°25'24.518"N	80°52'24.316"W	343.71	355.653	4.56	-4.47	-4.74	
5809.00	6.070	343.410	5773.06	-338.18	349.14	-27.55	1676160.96	14316154.89	39°25'24.581"N	80°52'24.335"W	350.22	355.488	8.63	-8.49	-11.57	
5903.00	0.990	205.660	5866.90	-342.58	353.17	-29.33	1676159.18	14316158.92	39°25'24.621"N	80°52'24.357"W	354.39	355.253	7.27	-5.40	-146.54	
5950.00	6.600	158.060	5913.79	-339.59	350.30	-28.49	1676160.02	14316156.05	39°25'24.593"N	80°52'24.347"W	351.46	355.350	12.72	11.94	-101.28	
5997.00	11.420	152.140	5960.20	-332.28	343.68	-25.31	1676163.20	14316149.43	39°25'24.527"N	80°52'24.306"W	344.61	355.789	10.43	10.26	-12.60	
6045.00	15.410	150.870	6006.88	-321.29	333.90	-19.98	1676168.53	14316139.66	39°25'24.430"N	80°52'24.239"W	334.50	356.576	8.33	8.31	-2.65	
6092.00	18.420	152.640	6051.84	-307.77	321.85	-13.53	1676174.98	14316127.61	39°25'24.311"N	80°52'24.157"W	322.13	357.593	6.50	6.40	3.77	
6139.00	21.570	154.780	6096.00	-291.81	307.43	-6.43	1676182.07	14316113.20	39°25'24.169"N	80°52'24.066"W	307.50	358.802	6.88	6.70	4.55	
6186.00	25.320	156.890	6139.11	-273.18	290.37	1.20	1676189.70	14316096.14	39°25'24.000"N	80°52'23.970"W	290.37	0.236	8.18	7.98	4.49	
6233.00	28.850	157.420	6180.95	-251.81	270.65	9.50	1676198.00	14316076.43	39°25'23.805"N	80°52'23.864"W	270.81	2.010	7.53	7.51	1.13	
6280.00	32.930	156.140	6221.28	-227.74	248.48	19.03	1676207.52	14316054.28	39°25'23.586"N	80°52'23.743"W	249.21	4.378	8.79	8.68	-2.72	
6328.00	37.550	155.590	6260.47	-200.14	223.22	30.35	1676218.84	14316029.02	39°25'23.336"N	80°52'23.599"W	225.27	7.744	9.65	9.62	-1.15	
6375.00	42.040	155.300	6296.57	-170.18	195.87	42.85	1676231.34	14316001.68	39°25'23.065"N	80°52'23.440"W	200.50	12.342	9.56	9.55	-0.62	
6422.00	46.580	155.210	6330.20	-137.49	166.06	56.59	1676245.07	14315971.88	39°25'22.770"N	80°52'23.266"W	175.44	18.820	9.66	9.66	-0.19	
6432.00†	47.607	155.318	6337.00	-130.19	159.41	59.66	1676248.14	14315965.23	39°25'22.705"N	80°52'23.227"W	170.20	20.519	10.31	10.27	1.08	Middlesex: 6432' MD / 6337' TVD
6469.00	51.410	155.690	6361.02	-102.16	133.80	71.32	1676259.79	14315939.64	39°25'22.451"N	80°52'23.079"W	151.63	28.059	10.31	10.28	1.00	
6516.00	55.600	155.800	6388.97	-64.52	99.36	86.84	1676275.30	14315905.21	39°25'22.111"N	80°52'22.882"W	131.96	41.152	8.92	8.91	0.23	
6563.00	56.250	155.440	6415.30	-25.72	63.90	102.91	1676291.37	14315869.77	39°25'21.760"N	80°52'22.678"W	121.14	58.161	1.52	1.38	-0.77	
6609.00†	56.113	155.450	6440.91	12.35	29.14	118.79	1676307.24	14315835.02	39°25'21.416"N	80°52'22.476"W	122.31	76.216	0.30	-0.30	0.02	Burket: 6609' MD / 6441' TVD
6610.00	56.110	155.450	6441.46	13.18	28.39	119.14	1676307.59	14315834.27	39°25'21.409"N	80°52'22.471"W	122.47	76.597	0.30	-0.30	0.00	
6657.00	61.030	155.390	6465.97	53.12	-8.07	135.81	1676324.26	14315797.82	39°25'21.048"N	80°52'22.260"W	136.05	93.401	10.47	10.47	-0.13	
6670.00†	62.363	155.416	6472.13	64.52	-18.48	140.58	1676329.02	14315787.42	39°25'20.945"N	80°52'22.199"W	141.79	97.488	10.26	10.26	0.20	Tully: 6670' MD / 6472' TVD
6704.00	65.850	155.480	6486.97	94.99	-46.29	153.28	1676341.72	14315759.61	39°25'20.670"N	80°52'22.038"W	160.12	106.805	10.26	10.26	0.19	
6751.00	72.920	155.810	6503.51	138.80	-86.35	171.41	1676359.84	14315719.58	39°25'20.274"N	80°52'21.807"W	191.93	116.736	15.06	15.04	0.70	
6753.00†	73.094	155.853	6504.10	140.70	-88.09	172.19	1676360.63	14315717.83	39°25'20.257"N	80°52'21.797"W	193.42	117.093	8.93	8.68	2.17	Marcellus POE: 6753' MD / 6504' TVD
6799.00	77.090	156.830	6515.93	185.03	-128.80	190.03	1676378.45	14315677.14	39°25'19.854"N	80°52'21.571"W	229.56	124.129	8.93	8.69	2.12	
6846.00	80.700	157.810	6524.98	231.08	-171.35	207.80	1676396.22	14315634.61	39°25'19.434"N	80°52'21.345"W	269.34	129.508	7.95	7.68	2.09	
6893.00	84.980	158.740	6530.84	277.67	-214.66	225.06	1676413.47	14315591.32	39°25'19.005"N	80°52'21.126"W	311.01	133.645	9.32	9.11	1.98	
6940.00	89.630	160.720	6533.05	324.60	-258.68	241.32	1676429.72	14315547.31	39°25'18.570"N	80°52'20.920"W	353.77	136.989	10.75	9.89	4.21	

Actual Wellpath Report

Bead Unit 2H AWP Proj: 18670'

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Tyler County, WV	Well	Bead Unit 2H
Field	Tyler	Wellbore	Bead Unit 2H AWB
Facility	Edna Monroe Pad		

WELLPATH DATA (216 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
6987.00	89.630	162.070	6533.35	371.59	-303.23	256.31	1676444.71	14315502.79	39°25'18.130"N	80°52'20.729"W	397.04	139.793	2.87	0.00	2.87	
7082.00	89.630	164.430	6533.96	466.46	-394.19	283.69	1676472.07	14315411.86	39°25'17.230"N	80°52'20.382"W	485.66	144.258	2.48	0.00	2.48	
7176.00	89.660	166.290	6534.55	560.11	-485.13	307.44	1676495.82	14315320.96	39°25'16.331"N	80°52'20.081"W	574.34	147.636	1.98	0.03	1.98	
7270.00	89.600	167.840	6535.15	653.47	-576.74	328.48	1676516.85	14315229.38	39°25'15.425"N	80°52'19.815"W	663.72	150.336	1.65	-0.06	1.65	
7364.00	89.820	165.940	6535.63	746.87	-668.28	349.80	1676538.16	14315137.87	39°25'14.520"N	80°52'19.545"W	754.30	152.371	2.03	0.23	-2.02	
7459.00	89.690	164.810	6536.04	841.51	-760.20	373.79	1676562.14	14315045.99	39°25'13.611"N	80°52'19.241"W	847.13	153.817	1.20	-0.14	-1.19	
7553.00	89.660	161.560	6536.57	935.39	-850.17	400.98	1676589.32	14314956.06	39°25'12.722"N	80°52'18.896"W	939.99	154.749	3.46	-0.03	-3.46	
7647.00	89.720	158.100	6537.08	1029.37	-938.39	433.38	1676621.71	14314867.87	39°25'11.849"N	80°52'18.485"W	1033.63	155.211	3.68	0.06	-3.68	
7740.00	89.570	156.150	6537.65	1122.21	-1024.07	469.53	1676657.85	14314782.23	39°25'11.002"N	80°52'18.026"W	1126.58	155.369	2.10	-0.16	-2.10	
7835.00	89.630	156.600	6538.32	1216.97	-1111.11	507.60	1676695.90	14314695.23	39°25'10.141"N	80°52'17.542"W	1221.56	155.447	0.48	0.06	0.47	
7929.00	89.630	158.480	6538.92	1310.84	-1197.97	543.51	1676731.80	14314608.40	39°25'09.282"N	80°52'17.086"W	1315.50	155.596	2.00	0.00	2.00	
8023.00	89.750	156.830	6539.43	1404.73	-1284.91	579.25	1676767.52	14314521.50	39°25'08.423"N	80°52'16.632"W	1409.44	155.734	1.76	0.13	-1.76	
8118.00	89.850	155.620	6539.76	1499.47	-1371.84	617.55	1676805.80	14314434.60	39°25'07.563"N	80°52'16.146"W	1504.43	155.765	1.28	0.11	-1.27	
8212.00	89.970	156.670	6539.91	1593.21	-1457.81	655.56	1676843.80	14314348.66	39°25'06.713"N	80°52'15.663"W	1598.43	155.787	1.12	0.13	1.12	
8306.00	89.570	155.230	6540.29	1686.92	-1543.65	693.87	1676882.09	14314262.86	39°25'05.864"N	80°52'15.176"W	1692.43	155.796	1.59	-0.43	-1.53	
8401.00	89.510	157.240	6541.05	1781.66	-1630.59	732.15	1676920.36	14314175.96	39°25'05.004"N	80°52'14.690"W	1787.42	155.819	2.12	-0.06	2.12	
8495.00	89.660	160.090	6541.73	1875.60	-1718.13	766.34	1676954.54	14314088.44	39°25'04.138"N	80°52'14.256"W	1881.29	155.962	3.04	0.16	3.03	
8589.00	89.750	162.890	6542.22	1969.57	-1807.26	796.18	1676984.36	14313999.35	39°25'03.257"N	80°52'13.878"W	1974.87	156.224	2.98	0.10	2.98	
8684.00	89.570	169.540	6542.78	2064.03	-1899.47	818.81	1677006.98	14313907.18	39°25'02.345"N	80°52'13.591"W	2068.44	156.681	7.00	-0.19	7.00	
8778.00	89.690	169.170	6543.39	2156.89	-1991.85	836.17	1677024.33	14313814.84	39°25'01.432"N	80°52'13.372"W	2160.24	157.228	0.41	0.13	-0.39	
8873.00	90.150	164.340	6543.52	2251.28	-2084.30	857.93	1677046.09	14313722.43	39°25'00.518"N	80°52'13.096"W	2253.96	157.627	5.11	0.48	-5.08	
8967.00	89.510	160.890	6543.80	2345.20	-2173.99	886.01	1677074.16	14313632.77	39°24'59.631"N	80°52'12.740"W	2347.60	157.827	3.73	-0.68	-3.67	
9061.00	89.350	160.230	6544.74	2439.19	-2262.62	917.29	1677105.43	14313544.17	39°24'58.755"N	80°52'12.343"W	2441.49	157.932	0.72	-0.17	-0.70	
9156.00	89.510	161.720	6545.68	2534.18	-2352.43	948.26	1677136.38	14313454.40	39°24'57.866"N	80°52'11.950"W	2536.36	158.046	1.58	0.17	1.57	
9250.00	89.600	163.160	6546.41	2628.12	-2442.04	976.62	1677164.73	14313364.83	39°24'56.980"N	80°52'11.590"W	2630.09	158.203	1.53	0.10	1.53	
9344.00	89.690	164.980	6546.99	2721.92	-2532.43	1002.42	1677190.51	14313274.48	39°24'56.087"N	80°52'11.263"W	2723.60	158.405	1.94	0.10	1.94	
9438.00	89.720	158.590	6547.48	2815.84	-2621.67	1031.78	1677219.87	14313185.27	39°24'55.204"N	80°52'10.891"W	2817.40	158.517	6.80	0.03	-6.80	
9532.00	89.720	153.450	6547.94	2909.53	-2707.53	1069.97	1677258.04	14313099.45	39°24'54.355"N	80°52'10.406"W	2911.28	158.437	5.47	0.00	-5.47	
9626.00	89.570	153.880	6548.52	3002.88	-2791.77	1111.67	1677299.73	14313015.24	39°24'53.522"N	80°52'09.876"W	3004.96	158.288	0.48	-0.16	0.46	
9720.00	89.940	157.700	6548.92	3096.55	-2877.48	1150.21	1677338.25	14312929.56	39°24'52.674"N	80°52'09.386"W	3098.86	158.212	4.08	0.39	4.06	

Actual Wellpath Report

Bead Unit 2H AWP Proj: 18670'

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Tyler County, WV	Well	Bead Unit 2H
Field	Tyler	Wellbore	Bead Unit 2H AWB
Facility	Edna Monroe Pad		

WELLPATH DATA (216 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
9815.00	90.000	158.760	6548.97	3191.48	-2965.71	1185.45	1677373.47	14312841.37	39°24'51.802"N	80°52'08.939"W	3193.85	158.213	1.12	0.06	1.12	
9909.00	90.090	156.340	6548.90	3285.36	-3052.58	1221.34	1677409.35	14312754.54	39°24'50.943"N	80°52'08.483"W	3287.84	158.194	2.58	0.10	-2.57	
10003.00	90.060	160.560	6548.77	3379.28	-3139.99	1255.86	1677443.86	14312667.16	39°24'50.078"N	80°52'08.045"W	3381.82	158.201	4.49	-0.03	4.49	
10098.00	90.090	159.400	6548.65	3474.28	-3229.24	1288.38	1677476.37	14312577.94	39°24'49.196"N	80°52'07.633"W	3476.77	158.249	1.22	0.03	-1.22	
10192.00	89.660	153.540	6548.86	3568.01	-3315.39	1325.89	1677513.86	14312491.83	39°24'48.344"N	80°52'07.156"W	3570.69	158.203	6.25	-0.46	-6.23	
10286.00	90.000	156.640	6549.13	3661.59	-3400.63	1365.48	1677553.43	14312406.62	39°24'47.501"N	80°52'06.653"W	3664.54	158.123	3.32	0.36	3.30	
10380.00	90.000	167.380	6549.13	3755.42	-3489.91	1394.47	1677582.41	14312317.38	39°24'46.618"N	80°52'06.286"W	3758.19	158.220	11.43	0.00	11.43	
10475.00	90.030	169.200	6549.11	3849.52	-3582.93	1413.75	1677601.68	14312224.40	39°24'45.698"N	80°52'06.042"W	3851.76	158.467	1.92	0.03	1.92	
10569.00	90.060	166.080	6549.04	3942.77	-3674.74	1433.87	1677621.79	14312132.63	39°24'44.790"N	80°52'05.787"W	3944.57	158.684	3.32	0.03	-3.32	
10663.00	90.090	165.230	6548.91	4036.37	-3765.81	1457.16	1677645.07	14312041.59	39°24'43.890"N	80°52'05.492"W	4037.90	158.846	0.90	0.03	-0.90	
10757.00	90.030	166.870	6548.81	4129.92	-3857.03	1479.82	1677667.73	14311950.41	39°24'42.988"N	80°52'05.205"W	4131.17	159.010	1.75	-0.06	1.74	
10851.00	90.120	168.270	6548.69	4223.18	-3948.82	1500.05	1677687.95	14311858.65	39°24'42.081"N	80°52'04.949"W	4224.14	159.200	1.49	0.10	1.49	
10946.00	90.180	161.970	6548.44	4317.81	-4040.59	1524.43	1677712.32	14311766.92	39°24'41.173"N	80°52'04.640"W	4318.60	159.330	6.63	0.06	-6.63	
11040.00	89.970	155.510	6548.32	4411.72	-4128.15	1558.50	1677746.38	14311679.40	39°24'40.307"N	80°52'04.208"W	4412.54	159.317	6.88	-0.22	-6.87	
11134.00	89.910	154.570	6548.42	4505.31	-4213.37	1598.17	1677786.03	14311594.21	39°24'39.465"N	80°52'03.704"W	4506.28	159.228	1.00	-0.06	-1.00	
11228.00	90.030	155.370	6548.47	4598.88	-4298.54	1637.94	1677825.78	14311509.07	39°24'38.622"N	80°52'03.199"W	4600.03	159.141	0.86	0.13	0.85	
11322.00	89.970	156.830	6548.47	4692.61	-4384.48	1676.02	1677863.85	14311423.17	39°24'37.772"N	80°52'02.715"W	4693.90	159.080	1.55	-0.06	1.55	
11416.00	89.660	160.830	6548.77	4786.56	-4472.11	1709.96	1677897.77	14311335.57	39°24'36.906"N	80°52'02.285"W	4787.88	159.075	4.27	-0.33	4.26	
11511.00	89.510	164.120	6549.46	4881.48	-4562.69	1738.56	1677926.36	14311245.03	39°24'36.010"N	80°52'01.922"W	4882.70	159.141	3.47	-0.16	3.46	
11605.00	89.540	159.480	6550.24	4975.43	-4651.96	1767.91	1677955.70	14311155.79	39°24'35.127"N	80°52'01.550"W	4976.57	159.191	4.94	0.03	-4.94	
11699.00	89.510	155.430	6551.02	5069.28	-4738.76	1803.94	1677991.72	14311069.03	39°24'34.269"N	80°52'01.092"W	5070.50	159.159	4.31	-0.03	-4.31	
11794.00	89.380	156.620	6551.94	5163.99	-4825.55	1842.54	1678030.30	14310982.27	39°24'33.410"N	80°52'00.602"W	5165.36	159.102	1.26	-0.14	1.25	
11888.00	89.480	158.340	6552.87	5257.86	-4912.38	1878.54	1678066.29	14310895.48	39°24'32.552"N	80°52'00.145"W	5259.31	159.073	1.83	0.11	1.83	
11983.00	89.940	160.530	6553.35	5352.84	-5001.32	1911.91	1678099.64	14310806.58	39°24'31.672"N	80°51'59.722"W	5354.30	159.079	2.36	0.48	2.31	
12077.00	89.850	162.110	6553.53	5446.82	-5090.36	1942.02	1678129.74	14310717.57	39°24'30.792"N	80°51'59.340"W	5448.23	159.118	1.68	-0.10	1.68	
12172.00	89.880	160.600	6553.75	5541.81	-5180.37	1972.39	1678160.10	14310627.59	39°24'29.902"N	80°51'58.954"W	5543.16	159.156	1.59	0.03	-1.59	
12266.00	90.000	158.050	6553.85	5635.78	-5268.31	2005.57	1678193.27	14310539.69	39°24'29.032"N	80°51'58.533"W	5637.15	159.159	2.72	0.13	-2.71	
12360.00	89.910	157.310	6553.92	5729.67	-5355.27	2041.27	1678228.95	14310452.77	39°24'28.172"N	80°51'58.080"W	5731.12	159.135	0.79	-0.10	-0.79	
12455.00	90.220	160.390	6553.81	5824.63	-5443.86	2075.54	1678263.21	14310364.21	39°24'27.296"N	80°51'57.645"W	5826.10	159.130	3.26	0.33	3.24	
12549.00	90.310	163.970	6553.38	5918.57	-5533.33	2104.31	1678291.96	14310274.77	39°24'26.411"N	80°51'57.280"W	5919.96	159.178	3.81	0.10	3.81	

Actual Wellpath Report

Bead Unit 2H AWP Proj: 18670'

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Tyler County, WV	Well	Bead Unit 2H
Field	Tyler	Wellbore	Bead Unit 2H AWB
Facility	Edna Monroe Pad		

WELLPATH DATA (216 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
12643.00	90.250	164.390	6552.92	6012.36	-5623.77	2129.93	1678317.58	14310184.37	39°24'25.517"N	80°51'56.956"W	6013.60	159.256	0.45	-0.06	0.45	
12738.00	90.000	162.570	6552.71	6107.22	-5714.85	2156.94	1678344.58	14310093.33	39°24'24.617"N	80°51'56.613"W	6108.34	159.322	1.93	-0.26	-1.92	
12832.00	89.850	162.590	6552.84	6201.16	-5804.53	2185.08	1678372.71	14310003.68	39°24'23.730"N	80°51'56.257"W	6202.19	159.371	0.16	-0.16	0.02	
12926.00	89.850	163.080	6553.08	6295.07	-5894.35	2212.83	1678400.44	14309913.90	39°24'22.842"N	80°51'55.905"W	6296.02	159.423	0.52	0.00	0.52	
13020.00	89.970	162.720	6553.23	6388.98	-5984.19	2240.46	1678428.07	14309824.10	39°24'21.953"N	80°51'55.554"W	6389.85	159.474	0.40	0.13	-0.38	
13114.00	89.750	162.090	6553.46	6482.93	-6073.79	2268.88	1678456.47	14309734.53	39°24'21.067"N	80°51'55.194"W	6483.73	159.517	0.71	-0.23	-0.67	
13208.00	89.820	161.090	6553.81	6576.90	-6162.98	2298.57	1678486.14	14309645.38	39°24'20.185"N	80°51'54.818"W	6577.67	159.546	1.07	0.07	-1.06	
13302.00	89.910	160.070	6554.03	6670.90	-6251.63	2329.82	1678517.39	14309556.76	39°24'19.309"N	80°51'54.421"W	6671.65	159.561	1.09	0.10	-1.09	
13396.00	89.940	160.630	6554.16	6764.90	-6340.16	2361.43	1678548.98	14309468.27	39°24'18.433"N	80°51'54.020"W	6765.64	159.572	0.60	0.03	0.60	
13491.00	89.850	160.590	6554.33	6859.90	-6429.77	2392.97	1678580.51	14309378.70	39°24'17.547"N	80°51'53.620"W	6860.63	159.586	0.10	-0.09	-0.04	
13585.00	89.970	159.510	6554.48	6953.90	-6518.13	2425.04	1678612.57	14309290.37	39°24'16.673"N	80°51'53.213"W	6954.62	159.592	1.16	0.13	-1.15	
13679.00	89.880	158.910	6554.60	7047.88	-6606.00	2458.41	1678645.92	14309202.53	39°24'15.804"N	80°51'52.790"W	7048.62	159.587	0.65	-0.10	-0.64	
13773.00	89.880	156.850	6554.80	7141.78	-6693.08	2493.80	1678681.30	14309115.49	39°24'14.943"N	80°51'52.341"W	7142.57	159.565	2.19	0.00	-2.19	
13867.00	89.820	156.180	6555.04	7235.56	-6779.29	2531.26	1678718.74	14309029.31	39°24'14.091"N	80°51'51.865"W	7236.44	159.525	0.72	-0.06	-0.71	
13962.00	90.120	158.480	6555.09	7330.42	-6866.95	2567.87	1678755.34	14308941.69	39°24'13.224"N	80°51'51.400"W	7331.37	159.497	2.44	0.32	2.42	
14056.00	90.220	161.080	6554.82	7424.40	-6955.15	2600.36	1678787.82	14308853.53	39°24'12.351"N	80°51'50.988"W	7425.36	159.500	2.77	0.11	2.77	
14150.00	90.060	163.580	6554.59	7518.34	-7044.71	2628.89	1678816.33	14308764.01	39°24'11.466"N	80°51'50.626"W	7519.24	159.536	2.67	-0.17	2.66	
14245.00	89.940	160.570	6554.59	7613.29	-7135.08	2658.12	1678845.56	14308673.66	39°24'10.572"N	80°51'50.256"W	7614.13	159.568	3.17	-0.13	-3.17	
14339.00	89.850	159.750	6554.76	7707.29	-7223.50	2690.02	1678877.45	14308585.28	39°24'09.698"N	80°51'49.851"W	7708.13	159.575	0.88	-0.10	-0.87	
14433.00	89.880	157.710	6554.98	7801.24	-7311.10	2724.12	1678911.53	14308497.72	39°24'08.832"N	80°51'49.418"W	7802.11	159.565	2.17	0.03	-2.17	
14528.00	89.940	155.980	6555.13	7896.05	-7398.44	2761.48	1678948.87	14308410.41	39°24'07.968"N	80°51'48.944"W	7897.00	159.532	1.82	0.06	-1.82	
14622.00	89.780	153.860	6555.36	7989.62	-7483.57	2801.32	1678988.70	14308325.32	39°24'07.126"N	80°51'48.438"W	7990.70	159.478	2.26	-0.17	-2.26	
14716.00	89.880	157.250	6555.64	8083.26	-7569.13	2840.21	1679027.57	14308239.79	39°24'06.280"N	80°51'47.944"W	8084.46	159.432	3.61	0.11	3.61	
14810.00	89.850	160.940	6555.86	8177.22	-7656.93	2873.75	1679061.10	14308152.03	39°24'05.411"N	80°51'47.519"W	8178.45	159.428	3.93	-0.03	3.93	
14905.00	89.940	161.320	6556.03	8272.21	-7746.82	2904.47	1679091.81	14308062.17	39°24'04.522"N	80°51'47.129"W	8273.40	159.448	0.41	0.09	0.40	
14999.00	89.850	162.160	6556.21	8366.19	-7836.09	2933.93	1679121.25	14307972.94	39°24'03.640"N	80°51'46.756"W	8367.33	159.473	0.90	-0.10	0.89	
15093.00	89.940	164.570	6556.38	8460.06	-7926.15	2960.83	1679148.15	14307882.92	39°24'02.749"N	80°51'46.415"W	8461.11	159.517	2.57	0.10	2.56	
15187.00	89.850	165.940	6556.55	8553.72	-8017.05	2984.76	1679172.06	14307792.05	39°24'01.850"N	80°51'46.112"W	8554.64	159.580	1.46	-0.10	1.46	
15281.00	90.060	163.620	6556.62	8647.44	-8107.75	3009.43	1679196.73	14307701.39	39°24'00.954"N	80°51'45.799"W	8648.25	159.636	2.48	0.22	-2.47	
15375.00	89.970	165.570	6556.60	8741.19	-8198.36	3034.40	1679221.69	14307610.81	39°24'00.058"N	80°51'45.483"W	8741.90	159.689	2.08	-0.10	2.07	

Actual Wellpath Report

Bead Unit 2H AWP Proj: 18670'

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Tyler County, WV	Well	Bead Unit 2H
Field	Tyler	Wellbore	Bead Unit 2H AWB
Facility	Edna Monroe Pad		

WELLPATH DATA (216 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
15470.00	89.880	168.870	6556.72	8835.51	-8291.00	3055.41	1679242.69	14307518.21	39°23'59.142"N	80°51'45.217"W	8836.07	159.770	3.47	-0.09	3.47	
15564.00	89.780	167.300	6557.00	8928.66	-8382.97	3074.82	1679262.09	14307426.28	39°23'58.232"N	80°51'44.972"W	8929.09	159.857	1.67	-0.11	-1.67	
15658.00	89.780	163.100	6557.36	9022.31	-8473.83	3098.83	1679286.09	14307335.45	39°23'57.334"N	80°51'44.668"W	9022.67	159.913	4.47	0.00	-4.47	
15752.00	89.910	158.950	6557.62	9116.29	-8562.70	3129.38	1679316.63	14307246.62	39°23'56.455"N	80°51'44.280"W	9116.63	159.924	4.42	0.14	-4.41	
15846.00	89.880	153.440	6557.79	9210.00	-8648.67	3167.31	1679354.54	14307160.68	39°23'55.605"N	80°51'43.799"W	9210.40	159.886	5.86	-0.03	-5.86	
15940.00	89.660	154.780	6558.17	9303.42	-8733.23	3208.35	1679395.57	14307076.15	39°23'54.769"N	80°51'43.277"W	9303.92	159.828	1.44	-0.23	1.43	
16034.00	89.350	158.040	6558.98	9397.18	-8819.36	3245.96	1679433.16	14306990.06	39°23'53.917"N	80°51'42.800"W	9397.74	159.794	3.48	-0.33	3.47	
16129.00	89.600	160.170	6559.85	9492.14	-8908.11	3279.84	1679467.03	14306901.35	39°23'53.039"N	80°51'42.370"W	9492.72	159.787	2.26	0.26	2.24	
16223.00	89.140	160.930	6560.88	9586.14	-8996.74	3311.14	1679498.32	14306812.76	39°23'52.163"N	80°51'41.973"W	9586.71	159.794	0.95	-0.49	0.81	
16317.00	89.690	159.290	6561.84	9680.13	-9085.12	3343.12	1679530.28	14306724.41	39°23'51.289"N	80°51'41.568"W	9680.70	159.798	1.84	0.59	-1.74	
16411.00	89.720	158.740	6562.33	9774.10	-9172.89	3376.78	1679563.93	14306636.68	39°23'50.421"N	80°51'41.141"W	9774.69	159.790	0.59	0.03	-0.59	
16505.00	89.720	162.660	6562.79	9868.08	-9261.59	3407.84	1679594.98	14306548.01	39°23'49.544"N	80°51'40.747"W	9868.66	159.799	4.17	0.00	4.17	
16599.00	89.780	163.900	6563.20	9961.96	-9351.61	3434.89	1679622.01	14306458.03	39°23'48.653"N	80°51'40.404"W	9962.48	159.831	1.32	0.06	1.32	
16693.00	89.570	160.800	6563.73	10055.89	-9441.17	3463.38	1679650.50	14306368.50	39°23'47.768"N	80°51'40.043"W	10056.38	159.855	3.31	-0.22	-3.30	
16787.00	89.570	156.510	6564.44	10149.82	-9528.70	3497.59	1679684.69	14306281.01	39°23'46.902"N	80°51'39.609"W	10150.33	159.844	4.56	0.00	-4.56	
16881.00	90.000	155.600	6564.79	10243.55	-9614.61	3535.74	1679722.82	14306195.13	39°23'46.053"N	80°51'39.124"W	10244.13	159.809	1.07	0.46	-0.97	
16976.00	89.750	157.360	6565.00	10338.32	-9701.71	3573.65	1679760.72	14306108.06	39°23'45.191"N	80°51'38.643"W	10338.96	159.779	1.87	-0.26	1.85	
17069.00	89.970	156.630	6565.22	10431.15	-9787.32	3609.99	1679797.05	14306022.50	39°23'44.344"N	80°51'38.182"W	10431.85	159.754	0.82	0.24	-0.78	
17164.00	89.910	157.230	6565.32	10525.97	-9874.72	3647.22	1679834.26	14305935.13	39°23'43.480"N	80°51'37.709"W	10526.74	159.728	0.63	-0.06	0.63	
17258.00	89.970	158.360	6565.42	10619.87	-9961.74	3682.74	1679869.77	14305848.14	39°23'42.619"N	80°51'37.259"W	10620.69	159.711	1.20	0.06	1.20	
17352.00	89.910	158.060	6565.52	10713.80	-10049.03	3717.64	1679904.65	14305760.89	39°23'41.756"N	80°51'36.816"W	10714.65	159.698	0.33	-0.06	-0.32	
17446.00	89.940	162.770	6565.64	10807.78	-10137.56	3749.14	1679936.14	14305672.39	39°23'40.881"N	80°51'36.416"W	10808.62	159.704	5.01	0.03	5.01	
17540.00	89.910	160.830	6565.77	10901.74	-10226.86	3778.50	1679965.48	14305583.13	39°23'39.998"N	80°51'36.044"W	10902.55	159.722	2.06	-0.03	-2.06	
17634.00	89.940	162.610	6565.89	10995.72	-10316.11	3807.98	1679994.95	14305493.91	39°23'39.115"N	80°51'35.671"W	10996.49	159.739	1.89	0.03	1.89	
17728.00	89.940	166.330	6565.99	11089.47	-10406.66	3833.14	1680020.11	14305403.40	39°23'38.220"N	80°51'35.352"W	11090.16	159.779	3.96	0.00	3.96	
17823.00	89.940	167.320	6566.09	11183.87	-10499.16	3854.80	1680041.75	14305310.93	39°23'37.305"N	80°51'35.078"W	11184.45	159.839	1.04	0.00	1.04	
17917.00	90.060	162.920	6566.09	11277.53	-10589.99	3878.93	1680065.87	14305220.15	39°23'36.407"N	80°51'34.772"W	11278.03	159.883	4.68	0.13	-4.68	
18011.00	90.060	157.210	6565.99	11371.49	-10678.32	3910.96	1680097.90	14305131.85	39°23'35.534"N	80°51'34.366"W	11371.99	159.885	6.07	0.00	-6.07	
18106.00	89.820	156.010	6566.09	11466.28	-10765.51	3948.68	1680135.60	14305044.69	39°23'34.671"N	80°51'33.887"W	11466.83	159.857	1.29	-0.25	-1.26	
18200.00	89.940	160.300	6566.29	11560.18	-10852.74	3983.65	1680170.55	14304957.50	39°23'33.809"N	80°51'33.444"W	11560.77	159.844	4.57	0.13	4.56	

Actual Wellpath Report

Bead Unit 2H AWP Proj: 18670'

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Tyler County, WV	Well	Bead Unit 2H
Field	Tyler	Wellbore	Bead Unit 2H AWB
Facility	Edna Monroe Pad		

WELLPATH DATA (216 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
18294.00	90.150	161.230	6566.21	11654.18	-10941.49	4014.61	1680201.51	14304868.78	39°23'32.931"N	80°51'33.051"W	11654.76	159.851	1.01	0.22	0.99	
18389.00	90.120	161.680	6565.99	11749.16	-11031.56	4044.83	1680231.71	14304778.75	39°23'32.040"N	80°51'32.668"W	11749.72	159.864	0.47	-0.03	0.47	
18483.00	90.150	164.320	6565.77	11843.06	-11121.44	4072.31	1680259.18	14304688.90	39°23'31.151"N	80°51'32.320"W	11843.57	159.889	2.81	0.03	2.81	
18578.00	90.250	166.390	6565.43	11937.70	-11213.35	4096.33	1680283.19	14304597.03	39°23'30.243"N	80°51'32.016"W	11938.14	159.932	2.18	0.11	2.18	
18645.00	90.060	164.150	6565.25	12004.46	-11278.14	4113.36	1680300.21	14304532.26	39°23'29.602"N	80°51'31.800"W	12004.84	159.962	3.36	-0.28	-3.34	
18670.00	90.060	164.150	6565.23	12029.41	-11302.19	4120.19	1680307.04	14304508.23	39°23'29.364"N	80°51'31.713"W	12029.78	159.971	0.00	0.00	0.00	Projected MD at TD: 18670'

HOLE & CASING SECTIONS - Ref Wellbore: Bead Unit 2H AWB Ref Wellpath: Bead Unit 2H AWP Proj: 18670'

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	25.00	105.00	80.00	25.00	105.00	0.00	0.00	-0.17	0.08
17.5in Open Hole	105.00	532.00	427.00	105.00	531.99	-0.17	0.08	-3.44	0.56
13.375in Casing Surface	25.00	532.00	507.00	25.00	531.99	0.00	0.00	-3.44	0.56
12.25in Open Hole	532.00	2530.00	1998.00	531.99	2529.00	-3.44	0.56	-23.98	20.96
9.625in Casing Intermediate	25.00	2530.00	2505.00	25.00	2529.00	0.00	0.00	-23.98	20.96

Actual Wellpath Report

Bead Unit 2H AWP Proj: 18670'

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Tyler County, WV	Well	Bead Unit 2H
Field	Tyler	Wellbore	Bead Unit 2H AWB
Facility	Edna Monroe Pad		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Bead Unit 2H POE Rev-1	6503.00	-83.17	148.94	1676337.38	14315722.76	39°25'20.306"N	80°52'22.094"W	point
Bead Unit 2H LP Rev-1	6529.00	-239.30	204.48	1676392.90	14315566.69	39°25'18.762"N	80°52'21.389"W	point
Bead Unit 2H BHL Rev-2	6631.80	-11337.59	4152.37	1680339.21	14304472.85	39°23'29.014"N	80°51'31.304"W	point

WELLPATH COMPOSITION - Ref Wellbore: Bead Unit 2H AWB Ref Wellpath: Bead Unit 2H AWP Proj: 18670'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	5581.00	Gyrodata standard - Drop gyro or Multi-shot	03_Gyrodata MS Gyro <8-3/4"> (100'-5569')	Bead Unit 2H AWB
5581.00	18645.00	BHI AutoTrak Curve (Short)	04_BHI AT Curve <8-1/2"> (5581')(5668'-18645')	Bead Unit 2H AWB
18645.00	18670.00	Blind Drilling (std)	Projection to bit	Bead Unit 2H AWB

Actual Wellpath Report

Bead Unit 2H AWP Proj: 18670'

REFERENCE WELLPATH IDENTIFICATION			
Operator	**ANTERO RESOURCES CORPORATION**	Slot	**Slot #10**
Area	**Tyler County, WV**	Well	**Bead Unit 2H**
Field	**Tyler**	Wellbore	**Bead Unit 2H AWB**
Facility	**Edna Monroe Pad**		

COMMENTS

Wellpath general comments

API: 47-095-02362-0000
BHI Job #: 8397836
Rig: Patterson 343
Duration: 02/12/2017-02/16/2017
Gyrodata MS Gyro <8-3/4"> (100'-5569')
BHI AT Curve <8-1/2"> (5569')(5668'-18645')
Middlesex: 6432' MD / 6337' TVD
Burket: 6609' MD / 6441' TVD
Tully: 6670' MD / 6472' TVD
Marcellus POE: 6753' MD / 6504' TVD
Projected MD at TD: 18670'

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/26/2017
Job End Date:	6/26/2017
State:	West Virginia
County:	Tyler
API Number:	47-095-02362-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Bead Unit 2H
Latitude:	39.42256389
Longitude:	-80.87333333
Datum:	NAD27
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,552
Total Base Water Volume (gal):	25,197,646
Total Base Non Water Volume:	0

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	89.56096	Density = 8.340
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.31379	

SP BREAKER	Halliburton	Breaker					
				Listed Below			
SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
MC S-2510T	Halliburton	Scale Inhibitor					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant					
				Listed Below			
FR-76	Halliburton	Friction Reducer					
				Listed Below			

HYDROCHLORIC ACID	Halliburton	Solvent					
				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	10.06477	
			Hydrochloric acid	7647-01-0	60.00000	0.15317	
			Guar gum	9000-30-0	100.00000	0.02417	
			Inorganic salt	Proprietary	30.00000	0.02155	
			Acrylamide acrylate copolymer	Proprietary	30.00000	0.02155	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02155	
			Ethylene Glycol	107-21-1	60.00000	0.00824	
			Glutaraldehyde	111-30-8	30.00000	0.00259	
			Neutralized Polyacrylic Emulsion	Proprietary	10.00000	0.00137	
			Sodium persulfate	7775-27-1	100.00000	0.00043	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00043	
			Methanol	67-56-1	60.00000	0.00013	
			Ethanol	64-17-5	1.00000	0.00009	
			Ethoxylated alcohols	Proprietary	30.00000	0.00006	
			Fatty acids, tall oil	Proprietary	30.00000	0.00006	
			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1	30.00000	0.00006	
			Olefins	Proprietary	5.00000	0.00002	
			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)

LATITUDE 39°27'30" — 11,300'

7,200' TO BOTTOM HOLE
LATITUDE 39°25'00"

9,171' TO BOTTOM HOLE
LONGITUDE 80°50'00"

13,028'

LONGITUDE 80°50'00"

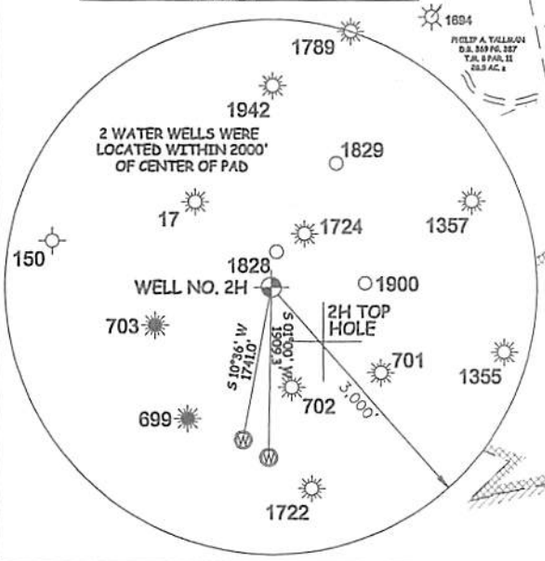
WV NORTH ZONE
GRID NORTH

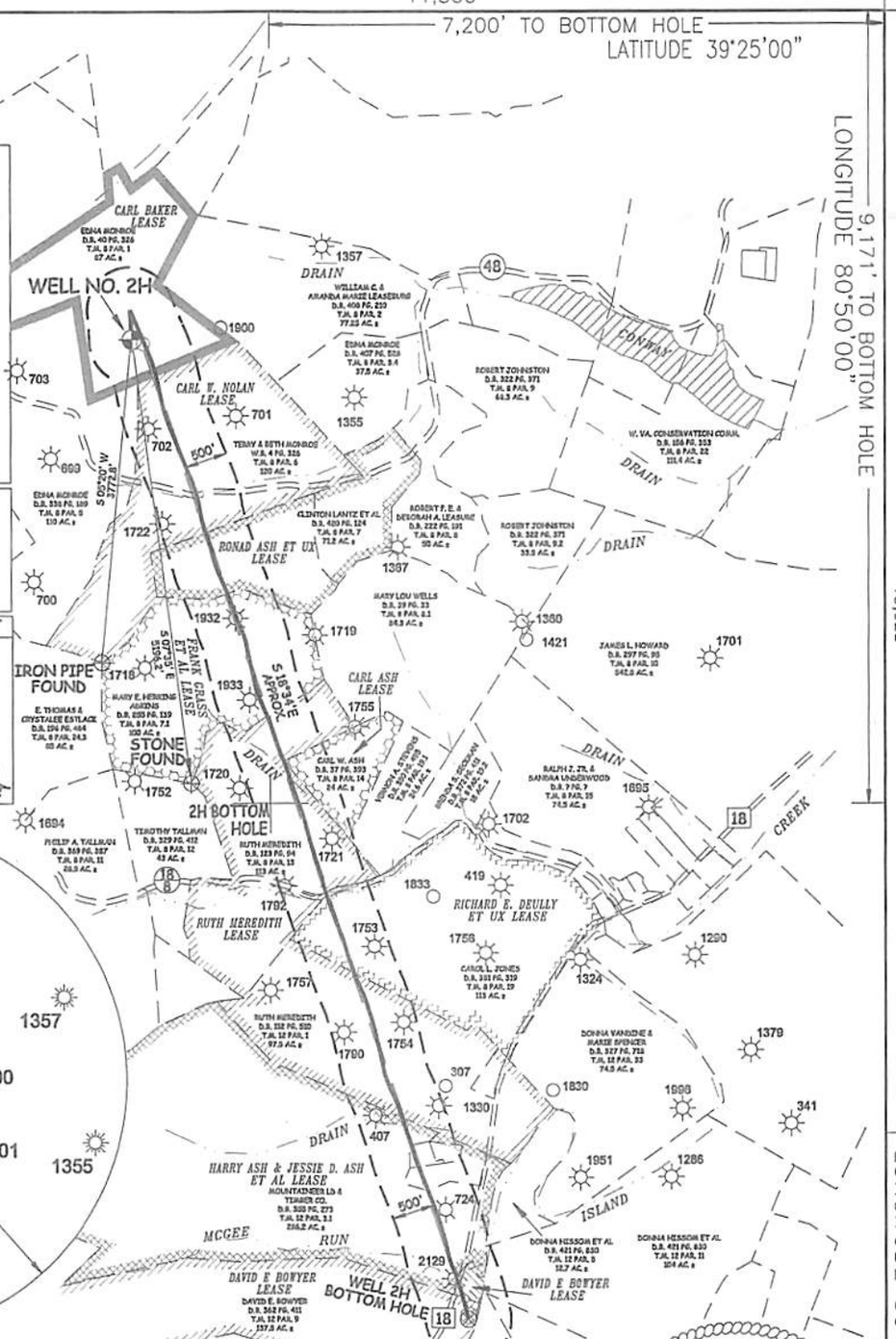
Antero Resources Corporation
Well No. Bead Unit 2H
47-095-02362 (AS DRILLED)

AS DRILLED NOTES:
WELL 2H TOP HOLE INFORMATION:
N: 338,982ft E: 1,612,047ft
LAT: 39°25'21.23" LON: 80°52'24.00"
BOTTOM HOLE INFORMATION:
N: 327,603ft E: 1,615,979ft
LAT: 39°23'29.36" LON: 80°51'31.71"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE.
ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT.
PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 2H TOP HOLE INFORMATION:
N: 4,363,687m E: 510,917m
BOTTOM HOLE INFORMATION:
N: 4,360,241m E: 512,173m

PAD LAYOUT
NOT TO SCALE
FUTURE WELL, FUTURE WELL, FUTURE WELL, FUTURE WELL, BEAD UNIT 1H, BEAD UNIT 2H, LEASEBURG UNIT 1H, DEULLY UNIT 1H, DEULLY UNIT 2H, DEULLY UNIT 3H, DEULLY UNIT 4H, SECKMAN UNIT 1H, SECKMAN UNIT 2H, SECKMAN UNIT 3H, SECKMAN UNIT 4H
N 06°15' W
GRID NORTH





I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPTARTMENT 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

THOMAS SUMMERS
LICENSED
No. 2109
STATE OF WEST VIRGINIA
PROFESSIONAL SURVEYOR

JOB # 15-013WA
DRAWING # BEAD2HAD
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND
Surface Owner Boundary Lines +/-
Interior Surface Tracts +/-
Found monument, as noted
Proposed Well Path
As Drilled Well Path

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

THOMAS SUMMERS P.S. 2109
DATE 12/13/17
OPERATOR'S WELL# BEAD UNIT #2H

NOTE
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY 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.

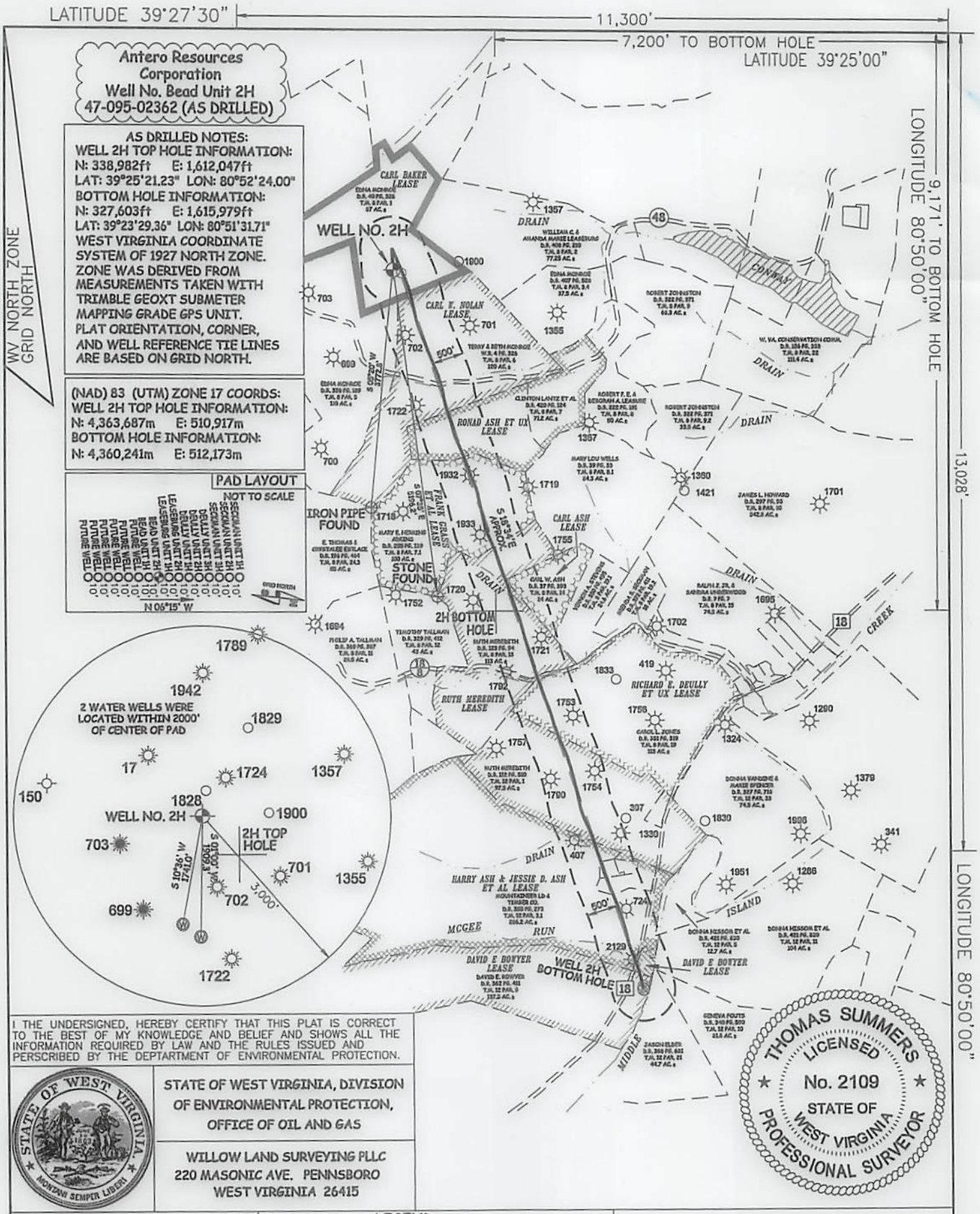
WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X

47 – 095 – 02362
STATE COUNTY PERMIT

LOCATION: ELEVATION 1,044' - AS DRILLED WATERSHED HEADWATERS MIDDLE ISLAND CREEK
QUADRANGLE SHIRLEY 7.5' DISTRICT CENTERVILLE COUNTY TYLER
SURFACE OWNER EDNA MONROE ACREAGE 87 ACRES +/-
OIL & GAS ROYALTY OWNER CARL BAKER; CARL W. NOLAN; RONAD ASH ET UX; FRANK GRASS ET AL; RUTH MEREDITH; RICHARD E DEULLY ET UX; HARRY ASH & JESSIE D. ASH ET AL; DAVID E BOWYER; DAVID E BOWYER
LEASE ACREAGE 87 AC.±; 120 AC±; 72 AC±; 100 AC±; 210 AC.±; 113 AC.±; 291 AC±; 2.9 AC±; 138 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 6,565' TVD 18,670' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME
PERMIT

FORM WW-6



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

LEGEND

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Found monument, as noted
- Proposed Well Path
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THOMAS SUMMERS P.S. 2109
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