

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

API 47 - 095 - 02379 County Tyler District Centerville
Quad Middlebourne 7.5' Pad Name Vera Pad Field/Pool Name -----
Farm name Vera O. Thomas Well Number Emerger Unit 3H
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 4363969m Easting 508279m
Landing Point of Curve Northing 4363975.07m Easting 508908.65m
Bottom Hole Northing 4361676m Easting 509743m

Elevation (ft) 1148.1' 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 1/24/2017 Date drilling commenced 3/22/2017 Date drilling ceased 8/15/2017
Date completion activities began 1/26/2018 Date completion activities ceased 6/27/2018
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 65', 215', 261', 399' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 620', 1614', 1974' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 620', 879' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed

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API 47- 095 - 02379 Farm name Vera O. Thomas Well number Emerger Unit 3H

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"	95'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	722'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2608'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	15857'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	7076'		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	200 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	600 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	928 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	740 sx (Lead) 1585 sx(Tail)	13.5 (Lead), 15.2 (Tail)	1.53 (Lead), 1.83 (Tail)		-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15857 MD, 6597 TVD (BHL), 6799' (Deepest Point Drilled) Loggers TD (ft) 15857 MD

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

Plug back procedure N/A

Kick off depth (ft) 6150'

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

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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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<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6569' (TOP)</u>	<u>TVD</u>	<u>7166' (TOP)</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 2800 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 8545 mcfpd Oil 171 bpd NGL --- bpd Water 27 bpd GAS MEASURED BY Estimated Orifice Pilot

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

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling LLC
Address 562 Spring Run Road City Pennsboro State WV Zip 26415

Logging Company Schlumberger
Address 5599 San Felipe Street City Houston State TX Zip 77056

Cementing Company C&J Energy Services
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

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

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223
Signature  Title Permitting Agent Date 2/8/2019

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

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API 47-095-02379 Farm Name Vera O. Thomas Well Number Emerger Unit 3H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	5/13/2018	15636	15802	60	Marcellus
2	5/14/2018	15439	15605	60	Marcellus
3	5/14/2018	15243	15409	60	Marcellus
4	5/15/2018	15046	15212	60	Marcellus
5	5/15/2018	14850	15016	60	Marcellus
6	5/15/2018	14653	14819	60	Marcellus
7	5/16/2018	14457	14623	60	Marcellus
8	5/16/2018	14260	14426	60	Marcellus
9	5/17/2018	14064	14230	60	Marcellus
10	5/17/2018	13867	14033	60	Marcellus
11	5/17/2018	13671	13837	60	Marcellus
12	5/18/2018	13474	13640	60	Marcellus
13	5/18/2018	13278	13444	60	Marcellus
14	5/19/2018	13081	13247	60	Marcellus
15	5/19/2018	12885	13051	60	Marcellus
16	5/19/2018	12688	12854	60	Marcellus
17	5/20/2018	12492	12658	60	Marcellus
18	5/20/2018	12295	12461	60	Marcellus
19	5/20/2018	12099	12265	60	Marcellus
20	5/21/2018	11902	12068	60	Marcellus
21	5/21/2018	11706	11872	60	Marcellus
22	5/21/2018	11509	11675	60	Marcellus
23	5/22/2018	11313	11479	60	Marcellus
24	5/22/2018	11116	11282	60	Marcellus
25	5/23/2018	10920	11086	60	Marcellus
26	5/23/2018	10723	10889	60	Marcellus
27	5/23/2018	10527	10693	60	Marcellus
28	5/23/2018	10330	10496	60	Marcellus
29	5/24/2018	10134	10300	60	Marcellus
30	5/24/2018	9937	10103	60	Marcellus
31	5/24/2018	9741	9907	60	Marcellus
32	5/25/2018	9544	9710	60	Marcellus
33	5/25/2018	9348	9514	60	Marcellus
34	5/26/2018	9151	9317	60	Marcellus
35	5/26/2018	8955	9121	60	Marcellus
36	5/26/2018	8758	8924	60	Marcellus
37	5/27/2018	8562	8728	60	Marcellus
38	5/27/2018	8365	8531	60	Marcellus
39	5/28/2018	8169	8335	60	Marcellus
40	5/28/2018	7972	8138	60	Marcellus
41	5/28/2018	7776	7942	60	Marcellus
42	5/28/2018	7579	7745	60	Marcellus
43	5/30/2018	7333	7549	60	Marcellus
44	5/30/2018	7186	7302	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	5/13/2018	76.7	7333	5341	3730	16404	10111	N/A
2	5/14/2018	76.4	7443	5806	3946	17195	10031	N/A
3	5/14/2018	75.4	7415	5973	3901	17289	11807	N/A
4	5/15/2018	69.1	6910	5895	4094	16899	11603	N/A
5	5/15/2018	71.5	8023	5761	3899	17683	11439	N/A
6	5/15/2018	76.1	7629	6266	3999	17894	10814	N/A
7	5/16/2018	71.2	8269	6138	4357	18764	10967	N/A
8	5/16/2018	74.9	7793	6234	4082	18109	10117	N/A
9	5/17/2018	74	7581	5831	4070	17482	10011	N/A
10	5/17/2018	78.1	7503	6121	4165	17789	10341	N/A
11	5/17/2018	75.6	7332	5747	4158	17237	10534	N/A
12	5/18/2018	76	7400	5717	4281	17398	13467	N/A
13	5/18/2018	76.3	7541	5864	4148	17553	10550	N/A
14	5/19/2018	78.8	7655	5653	4200	17508	10290	N/A
15	5/19/2018	74.2	7760	6107	4099	17966	10845	N/A
16	5/19/2018	62.2	7618	5743	4123	17484	12667	N/A
17	5/20/2018	76.2	7349	6005	4205	17559	9948	N/A
18	5/20/2018	76.3	7246	5789	4089	17124	10547	N/A
19	5/20/2018	73.6	7337	5834	4209	17380	9961	N/A
20	5/21/2018	80.3	7609	5803	4271	17683	9655	N/A
21	5/21/2018	73.2	7530	6042	4326	17898	9698	N/A
22	5/21/2018	77.2	7233	5827	4343	17403	9903	N/A
23	5/22/2018	75.7	7053	5988	4137	17178	10052	N/A
24	5/22/2018	78.5	7263	6123	4038	17424	9802	N/A
25	5/23/2018	77.1	7307	5974	4134	17415	9780	N/A
26	5/23/2018	73.9	6860	6012	4246	17118	9748	N/A
27	5/23/2018	76.4	7070	6018	4283	17371	9872	N/A
28	5/23/2018	74.1	6793	6078	4174	17045	9837	N/A
29	5/24/2018	79.6	7019	6026	4118	17163	9766	N/A
30	5/24/2018	77.5	6992	6071	4375	17438	9463	N/A
31	5/24/2018	77.3	7219	5119	4078	16416	9707	N/A
32	5/25/2018	75	6790	6459	4126	17375	9730	N/A
33	5/25/2018	77.8	6852	5962	4219	17033	9437	N/A
34	5/26/2018	75.4	6909	6213	4197	17319	9830	N/A
35	5/26/2018	75.8	6852	5957	4322	17131	10052	N/A
36	5/26/2018	77.4	6583	5724	4298	16605	9654	N/A
37	5/27/2018	73.9	6719	5828	4058	16605	9615	N/A
38	5/27/2018	78.8	6884	5935	4288	17107	9610	N/A
39	5/28/2018	77.7	6801	5838	4285	16924	9687	N/A
40	5/28/2018	74.3	7193	6396	4222	17811	9745	N/A
41	5/28/2018	78.9	6597	5889	4198	16684	9617	N/A
42	5/28/2018	78.2	6547	5555	4301	16403	9710	N/A
43	5/30/2018	61.4	7046	6495	4243	17784	13744	N/A
44	5/30/2018	69.7	6376	5637	4292	16305	10270	N/A
		75.2	7,210	5,927	4,167	761,355	454,034	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
Fresh Water	227'	N/A	227'	N/A
Sandstone	100	N/A	100	N/A
Sandy Siltstone	120	N/A	120	N/A
Sandy Shale	740	N/A	740	N/A
Calcareous Shale	880	N/A	880	N/A
Shaly Sandstone	920	N/A	920	N/A
Shaly Siltstone	1,020	N/A	1,020	N/A
Silty Shale	1,180	N/A	1,180	N/A
Sandstone	1,360	N/A	1,360	N/A
Sandy Shale	1,400	N/A	1,400	N/A
Shaly Sandstone	1,640	N/A	1,640	N/A
Silty Shale	1,700	N/A	1,700	N/A
Sandy Shale	1,780	N/A	1,780	N/A
Sandy Shale/Coal	1,920	N/A	1,920	N/A
Big Lime	2,055	N/A	2,099	N/A
Big Injun	2,203	N/A	2,256	N/A
Gantz Sand	2,659	N/A	2,738	N/A
Fifty Foot Sandstone	2,803	N/A	2,886	N/A
Gordon	2,904	N/A	2,993	N/A
Fifth Sandstone	3,086	N/A	3,183	N/A
Bayard	3,337	N/A	3,454	N/A
Warren	3,654	N/A	3,794	N/A
Speechley	3,990	N/A	4,152	N/A
Balltown	4,520	N/A	4,720	N/A
Bradford	4,709	N/A	4,925	N/A
Benson	4,947	N/A	5,181	N/A
Alexander	5,325	N/A	5,588	N/A
Rhinestreet	5,925	N/A	6,232	N/A
Sycamore	6,248	N/A	6,602	N/A
Middlesex	6,417	N/A	6,830	N/A
Burkett	6,514	N/A	7,001	N/A
Tully	6,542	N/A	7,078	N/A
Marcellus	6,569	N/A	7,166	N/A

*Please note Antero determines formation tops based on mud logs that are only run on one well on a multi-well pad. The measured depth (MD) data on subsequent wells may be slightly different due to the well's unique departure.

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ANTERO RESOURCES CORPORATION

Location: Tyler County, WV
 Field: Tyler
 Facility: Vera Pad

Slot: Slot #13
 Well: Emerger Unit 3H
 Wellbore: Emerger Unit 3H PWB



API: 47-095-02379-0000
 BHI Job #: 8695841
 Rig: Frontier 22
 Duration: 08/06/2017-08/09/2017

Plot reference wellpath is Emerger Unit 3H PWP Rev-B.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Frontier 22 (RKB)	* = Wellpath was transformed from a different geoidetic datum
Measured depths are referenced to Frontier 22 (RKB)	North Reference: Grid north
Frontier 22 (RKB) to Mean Sea Level: 1169.5 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot #13): -1145 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: ddeloet on 2017-09-06
	Database: WA MPL EasternUS_Defn



Gyrodatta MS Gyro <17-1/2"> (100°-712') : 0.19° Inc, 109.50ft MD, 109.50ft TVD, 0.11ft VS

Gyrodatta MS Gyro <12-1/4"> (712°-744'-1038') : 0.26° Inc, 753.50ft MD, 753.49ft TVD, 2.79ft VS

WFT EM <12-1/4"> (1038°-1083'-2524') : 11.42° Inc, 1092.50ft MD, 1090.20ft TVD, -12.40ft VS

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #13	Emerger Unit 3H	Emerger Unit 3H AWB	Emerger Unit 3H AWP Proj: 15857*
Slot #13	Emerger Unit 3H	Emerger Unit 3H PWB	Emerger Unit 3H PWP Rev-B.0

WFT EM <8-3/4"> (2524°-2666'-6706') : 17.22° Inc, 2675.50ft MD, 2599.65ft TVD, -151.30ft VS

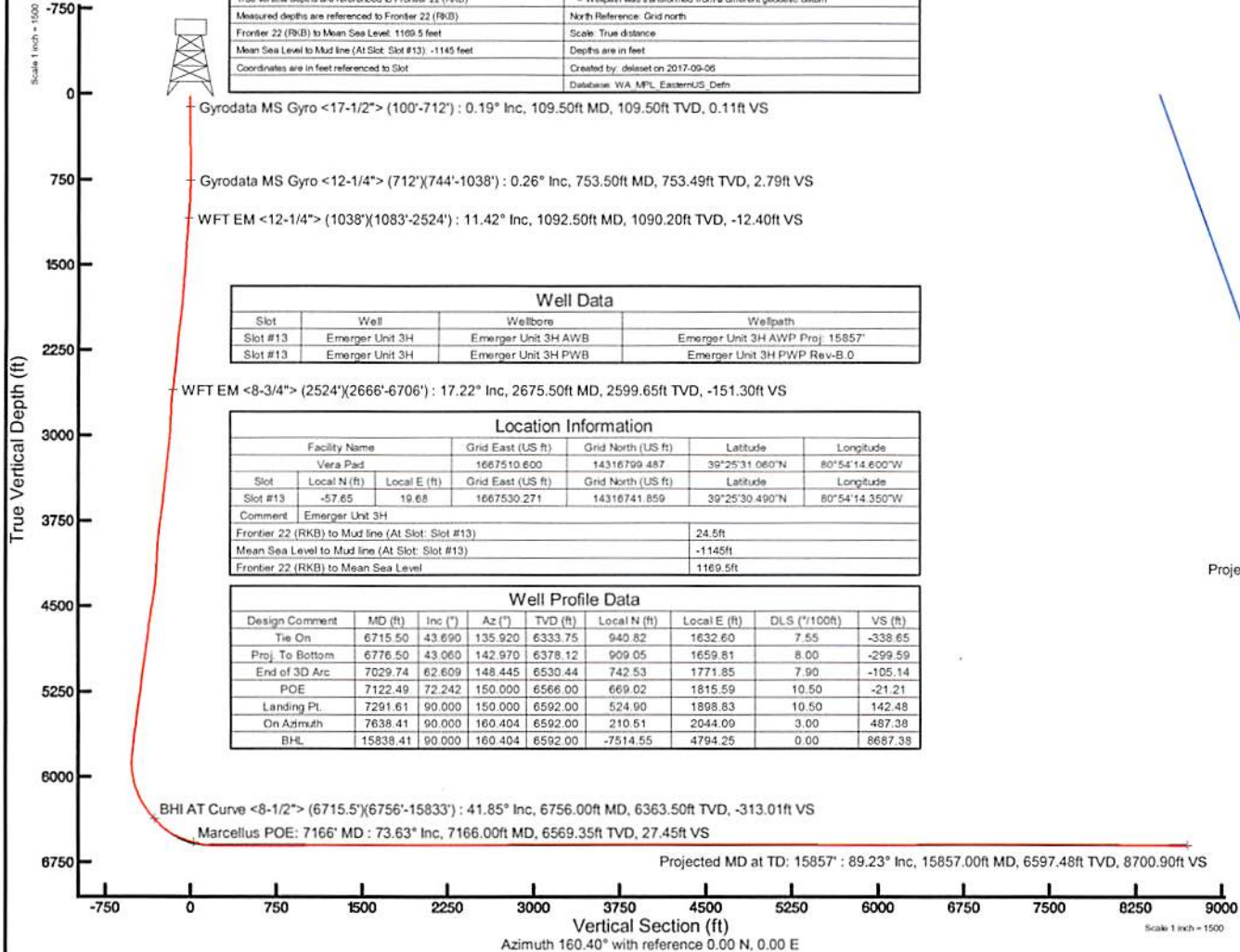
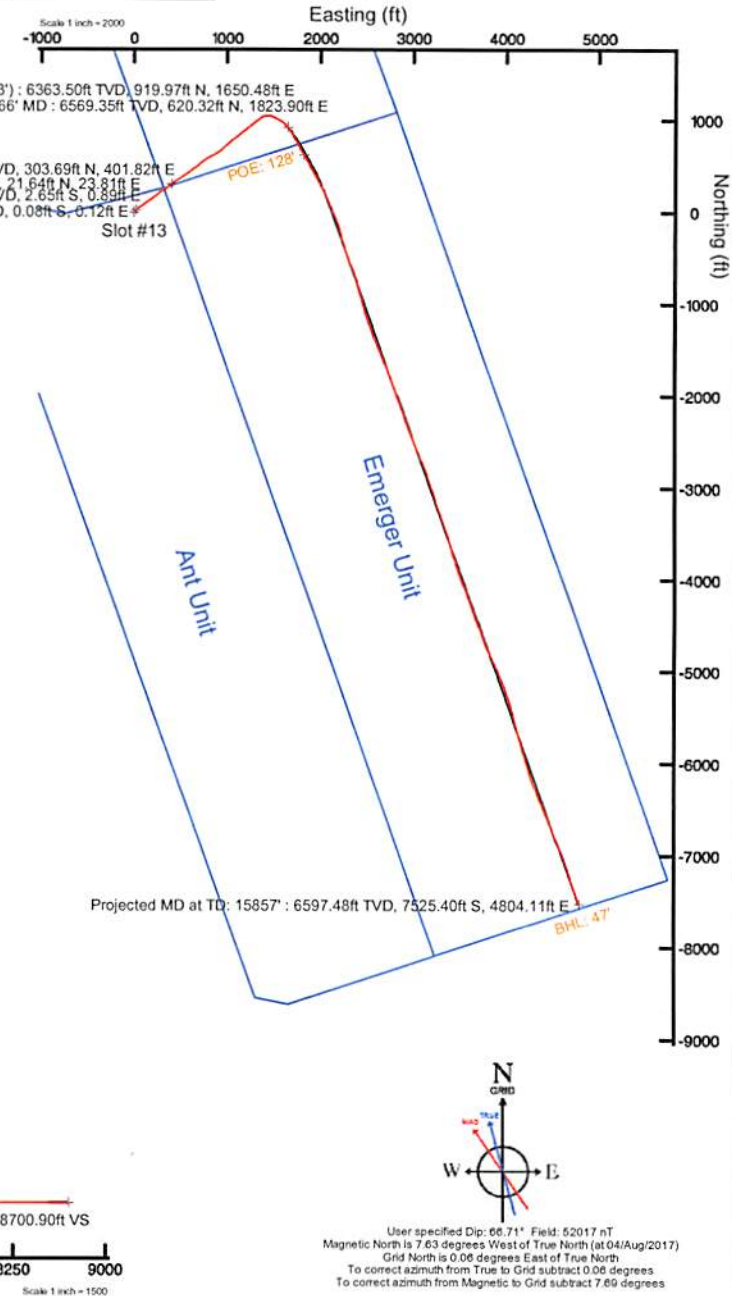
Location Information					
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Vera Pad	1667510.600	14316799.487	39°25'31.060"N	80°54'14.600"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Longitude
Slot #13	-57.65	19.68	1667530.271	14316741.859	39°25'30.490"N 80°54'14.350"W
Comment: Emerger Unit 3H					
Frontier 22 (RKB) to Mud line (At Slot: Slot #13): 24.5ft					
Mean Sea Level to Mud line (At Slot: Slot #13): -1145ft					
Frontier 22 (RKB) to Mean Sea Level: 1169.5ft					

Well Profile Data								
Design Comment	MD (ft)	Inc. (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	6715.50	43.690	135.920	6333.75	940.82	1632.60	7.55	-338.65
Proj. To Bottom	6776.50	43.060	142.970	6378.12	909.05	1659.81	8.00	-299.59
End of 3D Arc	7029.74	62.609	148.445	6530.44	742.53	1771.85	7.90	-105.14
POE	7122.49	72.242	150.000	6566.00	669.02	1815.59	10.50	-21.21
Landing Pt.	7291.61	90.000	150.000	6592.00	524.90	1898.83	10.50	142.48
On Azimuth	7638.41	90.000	160.404	6592.00	210.51	2044.09	3.00	487.38
BHL	15838.41	90.000	160.404	6592.00	-7514.55	4794.25	0.00	8687.38

BHI AT Curve <8-1/2"> (6715.5°-6756'-15833') : 41.85° Inc, 6756.00ft MD, 6363.50ft TVD, -313.01ft VS

Marcellus POE: 7166' MD : 73.63° Inc, 7166.00ft MD, 6569.35ft TVD, 27.45ft VS

Projected MD at TD: 15857' : 89.23° Inc, 15857.00ft MD, 6597.48ft TVD, 8700.90ft VS



User specified Dip: 66.71° Field: 52017 nT
 Magnetic North is 7.63 degrees West of True North (at 04/Aug/2017)
 Grid North is 0.08 degrees East of True North
 To correct azimuth from True to Grid subtract 0.08 degrees
 To correct azimuth from Magnetic to Grid subtract 7.69 degrees



Actual Wellpath Report

Emerger Unit 3H AWP Proj: 15857'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #13
Area	Tyler County, WV	Well	Emerger Unit 3H
Field	Tyler	Wellbore	Emerger Unit 3H AWB
Facility	Vera 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	06/Sep/2017 at 16:59
Convergence at slot	0.06° East	Database/Source file	WA_MPL_EasternUS_Defn/Emerger_Unit_3H_AWP_Proj_15857_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-57.65	19.68	1667530.27	14316741.86	39°25'30.490"N	80°54'14.350"W
Facility Reference Pt			1667510.60	14316799.49	39°25'31.060"N	80°54'14.600"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Frontier 22 (RKB) to Facility Vertical Datum	24.50ft
Horizontal Reference Pt	Slot	Frontier 22 (RKB) to Mean Sea Level	1169.50ft
Vertical Reference Pt	Frontier 22 (RKB)	Frontier 22 (RKB) to Mud Line at Slot (Slot #13)	24.50ft
MD Reference Pt	Frontier 22 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	160.40°

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Emerger Unit 3H AWP Proj: 15857

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #13
Area	Tyler County, WV	Well	Emerger Unit 3H
Field	Tyler	Wellbore	Emerger Unit 3H AWP
Facility	Vera Pad		

WELLPATH DATA (202 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 (ft/100ft)	Turn Rate (ft/100ft)	Comments
0.00	0.00	124.540	0.00	0.00	0.00	0.00	1667530.27	14316741.86	39°25'30.490"N	80°54'14.350"W	0.00	0.00	0.00	0.00	0.00	
24.50	0.00	124.540	24.50	0.00	0.00	0.00	1667530.27	14316741.86	39°25'30.490"N	80°54'14.350"W	0.00	0.00	0.00	0.00	0.00	
109.50	0.190	124.540	109.50	0.11	-0.08	0.12	1667530.39	14316741.78	39°25'30.489"N	80°54'14.349"W	0.14	124.540	0.22	0.22	146.52	Syrodata MS Gyro <17-112"> (100°-712)
209.50	0.290	109.030	209.50	0.41	-0.26	0.49	1667530.76	14316741.60	39°25'30.487"N	80°54'14.344"W	0.55	117.533	0.12	0.10	-15.51	
309.50	0.340	143.430	309.50	0.85	-0.58	0.91	1667531.18	14316741.28	39°25'30.484"N	80°54'14.338"W	1.08	122.447	0.19	0.05	34.40	
409.50	0.430	141.170	409.50	1.49	-1.11	1.32	1667531.59	14316740.75	39°25'30.479"N	80°54'14.333"W	1.72	130.006	0.09	0.09	-2.26	
509.50	0.210	171.040	509.49	2.02	-1.58	1.58	1667531.85	14316740.28	39°25'30.474"N	80°54'14.330"W	2.24	134.953	0.27	-0.22	29.87	
609.50	0.280	200.720	609.49	2.39	-1.99	1.53	1667531.80	14316739.87	39°25'30.470"N	80°54'14.331"W	2.51	142.530	0.14	0.07	29.68	
709.50	0.520	225.700	709.49	2.76	-2.54	1.11	1667531.39	14316739.32	39°25'30.465"N	80°54'14.336"W	2.77	156.274	0.29	0.24	24.98	
721.50	0.520	228.420	721.49	2.81	-2.61	1.03	1667531.31	14316739.25	39°25'30.464"N	80°54'14.337"W	2.81	158.372	0.21	0.00	22.67	
753.50	0.260	327.830	753.49	2.79	-2.65	0.89	1667531.16	14316739.21	39°25'30.464"N	80°54'14.339"W	2.79	161.449	1.93	-0.81	310.66	Syrodata MS Gyro <12-1/4"> (712)(744)-1038)
808.50	1.470	26.530	808.48	2.18	-1.91	1.14	1667531.41	14316739.95	39°25'30.471"N	80°54'14.336"W	2.22	149.228	2.46	2.20	106.73	
837.50	2.420	30.300	837.47	1.53	-1.05	1.61	1667531.88	14316740.81	39°25'30.480"N	80°54'14.329"W	1.92	123.013	3.30	3.28	13.00	
867.50	3.500	35.320	867.43	0.59	0.25	2.46	1667532.73	14316742.11	39°25'30.492"N	80°54'14.319"W	2.47	84.266	3.70	3.60	16.73	
897.50	4.700	39.040	897.35	-0.57	1.95	3.76	1667534.03	14316743.81	39°25'30.509"N	80°54'14.302"W	4.24	62.626	4.09	4.00	12.40	
927.50	6.040	41.200	927.22	-1.98	4.09	5.58	1667535.85	14316745.95	39°25'30.530"N	80°54'14.279"W	6.92	53.741	4.52	4.47	7.20	
957.50	7.130	42.480	957.02	-3.62	6.65	7.87	1667538.14	14316748.51	39°25'30.556"N	80°54'14.250"W	10.31	49.812	3.67	3.63	4.27	
987.50	7.950	44.520	986.76	-5.40	9.50	10.59	1667540.85	14316751.36	39°25'30.584"N	80°54'14.215"W	14.23	48.084	2.87	2.73	6.80	
1017.50	9.130	46.590	1016.42	-7.27	12.62	13.77	1667544.04	14316754.47	39°25'30.615"N	80°54'14.174"W	18.68	47.498	4.06	3.93	6.90	
1047.50	10.230	48.410	1046.00	-9.23	16.02	17.49	1667547.76	14316757.88	39°25'30.648"N	80°54'14.127"W	23.72	47.510	3.81	3.67	6.07	
1092.50	11.420	48.250	1090.20	-12.40	21.64	23.81	1667554.07	14316763.49	39°25'30.704"N	80°54'14.046"W	32.17	47.724	2.65	2.64	-0.36	WFT EM <12-1/4"> (1038)(1063+2524)
1123.50	12.170	47.820	1120.54	-14.82	25.88	28.52	1667558.78	14316767.73	39°25'30.745"N	80°54'13.986"W	38.51	47.774	2.44	2.42	-1.39	
1155.50	12.780	47.710	1151.79	-17.48	30.53	33.63	1667563.89	14316772.37	39°25'30.791"N	80°54'13.921"W	45.42	47.772	1.91	1.91	-0.34	
1250.50	13.290	52.850	1244.34	-24.82	44.19	50.11	1667569.00	14316786.03	39°25'30.926"N	80°54'13.711"W	66.81	48.591	1.33	0.54	5.41	
1345.50	14.650	55.880	1336.53	-31.13	57.53	68.76	1667599.00	14316799.36	39°25'31.058"N	80°54'13.473"W	89.65	50.084	1.63	1.43	3.19	
1439.50	17.220	55.390	1426.91	-37.71	72.10	90.06	1667620.29	14316813.93	39°25'31.202"N	80°54'13.201"W	115.36	51.320	2.74	2.73	-0.52	
1534.50	17.010	54.150	1517.70	-45.24	88.22	112.89	1667643.12	14316830.05	39°25'31.361"N	80°54'12.910"W	143.28	51.993	0.44	-0.22	-1.31	
1628.50	17.020	52.570	1607.59	-53.30	104.64	134.96	1667665.18	14316846.45	39°25'31.523"N	80°54'12.629"W	170.77	52.213	0.49	0.01	-1.68	
1723.50	16.760	55.610	1698.49	-61.06	120.83	157.31	1667687.52	14316862.64	39°25'31.663"N	80°54'12.344"W	198.35	52.473	0.97	-0.27	3.20	
1817.50	16.780	56.890	1788.50	-67.73	135.92	179.82	1667710.02	14316877.73	39°25'31.831"N	80°54'12.057"W	225.41	52.915	0.33	0.00	1.15	

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Actual Wellpath Report

Emerger Unit 3H AWP Proj: 15857'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #13
Area	Tyler County, WV		Well	Emerger Unit 3H
Field	Tyler		Wellbore	Emerger Unit 3H AWB
Facility	Vera Pad			

WELLPATH DATA (202 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
1911.50	17.630	52.640	1878.30	-75.28	152.01	202.46	1667732.65	14316893.80	39°25'31.990"N	80°54'11.768"W	253.17	53.101	1.57	0.93	-4.31	
2006.50	20.130	52.140	1968.18	-84.79	170.77	226.80	1667756.99	14316912.56	39°25'32.175"N	80°54'11.457"W	283.91	53.022	2.64	2.63	-0.53	
2101.50	19.970	51.620	2057.43	-95.14	190.88	252.43	1667782.60	14316932.66	39°25'32.374"N	80°54'11.131"W	316.47	52.905	0.25	-0.17	-0.55	
2195.50	20.830	55.020	2145.53	-104.74	210.42	278.71	1667808.87	14316952.20	39°25'32.567"N	80°54'10.796"W	349.22	52.947	1.56	0.91	3.62	
2289.50	20.550	57.110	2233.47	-112.96	228.97	306.25	1667836.40	14316970.73	39°25'32.750"N	80°54'10.444"W	382.38	53.217	0.84	-0.30	2.22	
2378.50	20.520	57.200	2316.82	-120.12	245.90	332.48	1667862.62	14316987.66	39°25'32.917"N	80°54'10.110"W	413.53	53.514	0.05	-0.03	0.10	
2473.50	17.730	52.020	2406.57	-128.48	263.82	357.89	1667888.02	14317005.58	39°25'33.094"N	80°54'09.786"W	444.62	53.604	3.43	-2.94	-5.45	
2533.50	16.820	48.570	2463.86	-134.59	275.19	371.60	1667901.72	14317016.94	39°25'33.206"N	80°54'09.611"W	462.40	53.478	2.28	-1.52	-5.75	
2675.50	17.220	44.830	2599.65	-151.30	303.69	401.82	1667931.93	14317045.43	39°25'33.487"N	80°54'09.225"W	503.68	52.918	0.82	0.28	-2.63	MFT EM <8-3/4"> (2524')(2666'-6706')
2769.50	15.160	53.070	2689.93	-160.97	320.95	421.46	1667951.56	14317062.68	39°25'33.658"N	80°54'08.975"W	529.75	52.710	3.28	-2.19	8.77	
2864.50	14.760	62.500	2781.72	-166.34	334.00	442.13	1667972.22	14317075.73	39°25'33.786"N	80°54'08.711"W	554.11	52.931	2.59	-0.42	9.93	
2959.50	17.620	59.260	2872.95	-170.78	346.94	465.23	1667995.31	14317088.66	39°25'33.914"N	80°54'08.417"W	580.35	53.286	3.16	3.01	-3.41	
3056.50	20.030	57.650	2964.75	-177.28	363.34	491.88	1668021.96	14317105.05	39°25'34.076"N	80°54'08.077"W	611.53	53.548	2.54	2.48	-1.66	
3151.50	19.710	55.490	3054.10	-185.00	381.12	518.83	1668048.89	14317122.83	39°25'34.251"N	80°54'07.733"W	643.77	53.700	0.84	-0.34	-2.27	
3245.50	21.110	55.220	3142.19	-193.51	399.76	545.79	1668075.85	14317141.46	39°25'34.435"N	80°54'07.389"W	676.53	53.780	1.49	1.49	-0.29	
3340.50	20.810	52.880	3230.91	-203.07	419.70	573.30	1668103.34	14317161.39	39°25'34.632"N	80°54'07.039"W	710.51	53.793	0.94	-0.32	-2.46	
3435.50	20.600	54.140	3319.77	-212.83	439.68	600.30	1668130.33	14317181.36	39°25'34.829"N	80°54'06.694"W	744.10	53.780	0.52	-0.22	1.33	
3529.50	21.290	55.080	3407.56	-221.97	459.13	627.70	1668157.72	14317200.81	39°25'35.021"N	80°54'06.345"W	777.69	53.816	0.82	0.73	1.00	
3624.50	20.580	52.500	3496.29	-231.66	479.17	655.09	1668185.10	14317220.84	39°25'35.219"N	80°54'05.996"W	811.63	53.816	1.22	-0.75	-2.72	
3719.50	21.760	52.640	3584.88	-242.16	500.02	682.33	1668212.33	14317241.68	39°25'35.425"N	80°54'05.648"W	845.93	53.766	1.24	1.24	0.15	
3813.50	20.980	50.770	3672.42	-253.13	521.24	709.22	1668239.20	14317262.89	39°25'35.634"N	80°54'05.305"W	880.16	53.686	1.10	-0.83	-1.99	
3907.50	20.410	51.200	3760.35	-264.17	542.15	735.02	1668265.00	14317283.79	39°25'35.840"N	80°54'04.976"W	913.34	53.588	0.63	-0.61	0.46	
4002.50	19.890	51.230	3849.54	-274.93	562.65	760.53	1668290.50	14317304.28	39°25'36.043"N	80°54'04.651"W	946.04	53.506	0.55	-0.55	0.03	
4097.50	19.630	58.840	3938.96	-283.43	581.03	786.79	1668316.75	14317322.65	39°25'36.224"N	80°54'04.316"W	978.08	53.555	2.72	-0.27	8.01	
4192.50	22.130	64.380	4027.72	-288.51	597.03	816.59	1668346.53	14317338.65	39°25'36.382"N	80°54'03.936"W	1011.56	53.829	3.35	2.63	5.83	
4287.50	19.900	63.710	4116.40	-292.27	611.93	847.22	1668377.16	14317353.54	39°25'36.529"N	80°54'03.545"W	1045.11	54.160	2.36	-2.35	-0.71	
4381.50	21.140	57.120	4204.44	-298.03	628.22	875.81	1668405.73	14317369.82	39°25'36.690"N	80°54'03.181"W	1077.82	54.348	2.79	1.32	-7.01	
4476.50	20.370	54.010	4293.28	-306.63	647.23	903.57	1668433.48	14317388.83	39°25'36.877"N	80°54'02.827"W	1111.47	54.386	1.41	-0.81	-3.27	
4571.50	22.250	51.030	4381.78	-317.26	668.26	930.94	1668460.84	14317409.86	39°25'37.085"N	80°54'02.478"W	1145.96	54.328	2.28	1.98	-3.14	
4665.50	22.040	48.610	4468.85	-329.71	691.12	958.01	1668487.89	14317432.70	39°25'37.310"N	80°54'02.132"W	1181.28	54.193	1.00	-0.22	-2.57	

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WELLPATH DATA (202 stations)												
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
4760.50	22.410	49.430	4556.79	-342.81	714.68	985.14	1668515.01	14317456.25	39°25'37.543"N	80°54'01.786"W	1217.07	54.040
4854.50	22.170	46.310	4643.77	-356.46	738.59	1011.57	1668541.44	14317480.15	39°25'37.779"N	80°54'01.449"W	1252.51	53.865
4948.50	21.490	49.290	4731.03	-369.90	727.07	1037.45	1668567.30	14317503.62	39°25'38.011"N	80°54'01.119"W	1287.26	53.700
5043.50	22.420	53.400	4819.15	-381.46	784.22	1065.18	1668595.03	14317525.77	39°25'38.229"N	80°54'00.765"W	1322.73	53.638
5137.50	21.870	51.580	4906.21	-392.35	805.79	1093.29	1668623.13	14317547.33	39°25'38.442"N	80°54'00.407"W	1358.16	53.609
5232.50	21.170	48.530	4994.59	-404.45	828.15	1120.01	1668649.83	14317569.67	39°25'38.663"N	80°54'00.066"W	1392.93	53.520
5327.50	21.520	50.430	5083.08	-416.79	850.61	1146.30	1668676.11	14317592.12	39°25'38.885"N	80°53'59.731"W	1427.42	53.423
5421.50	21.580	53.280	5170.51	-427.77	871.92	1173.44	1668703.24	14317613.43	39°25'39.095"N	80°53'59.384"W	1461.92	53.386
5515.50	21.360	50.000	5257.99	-438.83	893.26	1200.41	1668730.20	14317634.77	39°25'39.306"N	80°53'59.040"W	1496.30	53.346
5610.50	21.240	48.920	5346.50	-451.16	915.69	1226.64	1668756.42	14317657.18	39°25'39.527"N	80°53'58.706"W	1530.73	53.258
5705.50	22.170	52.060	5434.77	-463.10	938.02	1253.75	1668783.52	14317679.51	39°25'39.747"N	80°53'58.360"W	1565.81	53.197
5799.50	21.820	53.820	5521.93	-473.67	959.24	1281.84	1668811.59	14317700.71	39°25'39.957"N	80°53'58.002"W	1601.01	53.191
5894.50	21.380	49.790	5610.26	-484.80	980.84	1309.31	1668839.06	14317722.31	39°25'40.170"N	80°53'57.651"W	1635.96	53.162
5989.50	21.250	52.270	5698.76	-496.25	1002.56	1336.15	1668865.89	14317744.01	39°25'40.384"N	80°53'57.309"W	1670.46	53.118
6083.50	20.750	53.580	5786.52	-506.37	1022.87	1363.03	1668892.75	14317764.32	39°25'40.585"N	80°53'56.966"W	1704.14	53.114
6175.50	20.850	56.020	5816.44	-509.43	1029.42	1372.31	1668902.03	14317770.86	39°25'40.649"N	80°53'56.848"W	1715.50	53.125
6166.50	21.250	62.050	5845.37	-511.61	1035.13	1381.85	1668911.57	14317776.58	39°25'40.706"N	80°53'56.726"W	1726.56	53.163
6177.50	21.890	69.330	5874.20	-512.54	1039.81	1392.22	1668921.93	14317781.25	39°25'40.752"N	80°53'56.594"W	1737.66	53.245
6209.50	22.480	75.560	5903.84	-512.10	1043.44	1403.73	1668933.44	14317784.88	39°25'40.800"N	80°53'56.447"W	1749.06	53.375
6241.50	23.210	81.690	5933.33	-510.31	1045.88	1415.89	1668945.60	14317787.32	39°25'40.812"N	80°53'56.292"W	1760.29	53.548
6272.50	23.800	88.560	5961.77	-507.17	1046.92	1428.19	1668957.89	14317788.36	39°25'40.822"N	80°53'56.135"W	1770.81	53.757
6304.50	24.410	94.830	5990.98	-502.42	1046.52	1441.24	1668970.93	14317787.96	39°25'40.818"N	80°53'55.969"W	1781.12	54.016
6367.50	25.390	106.610	6048.09	-489.00	1041.57	1467.33	1668997.01	14317783.01	39°25'40.769"N	80°53'55.637"W	1799.42	54.631
6399.50	26.440	110.110	6076.87	-480.40	1037.16	1480.59	1669010.27	14317778.60	39°25'40.725"N	80°53'55.468"W	1807.72	54.989
6430.50	27.690	112.220	6104.48	-471.19	1032.06	1493.74	1669023.41	14317773.51	39°25'40.674"N	80°53'55.300"W	1815.61	55.358
6464.50	29.080	113.850	6132.63	-460.88	1026.11	1507.74	1669037.41	14317767.56	39°25'40.615"N	80°53'55.122"W	1823.78	55.762
6494.50	31.110	115.380	6160.31	-449.69	1019.42	1522.32	1669051.98	14317760.87	39°25'40.549"N	80°53'54.936"W	1832.12	56.192
6525.50	33.710	117.150	6186.48	-437.76	1012.06	1537.22	1669066.87	14317753.51	39°25'40.476"N	80°53'54.747"W	1840.46	56.640
6557.50	35.860	119.450	6212.77	-424.21	1003.40	1553.28	1669082.93	14317744.85	39°25'40.390"N	80°53'54.542"W	1849.19	57.138
6599.50	38.440	122.220	6240.04	-406.25	1004.70	1454.50	1668984.19	14317748.14	39°25'40.800"N	80°53'55.800"W	1790.80	54.312
6367.50	25.390	106.610	6048.09	-489.00	1041.57	1467.33	1668997.01	14317783.01	39°25'40.769"N	80°53'55.637"W	1799.42	54.631
6399.50	26.440	110.110	6076.87	-480.40	1037.16	1480.59	1669010.27	14317778.60	39°25'40.725"N	80°53'55.468"W	1807.72	54.989
6430.50	27.690	112.220	6104.48	-471.19	1032.06	1493.74	1669023.41	14317773.51	39°25'40.674"N	80°53'55.300"W	1815.61	55.358
6464.50	29.080	113.850	6132.63	-460.88	1026.11	1507.74	1669037.41	14317767.56	39°25'40.615"N	80°53'55.122"W	1823.78	55.762
6494.50	31.110	115.380	6160.31	-449.69	1019.42	1522.32	1669051.98	14317760.87	39°25'40.549"N	80°53'54.936"W	1832.12	56.192
6525.50	33.710	117.150	6186.48	-437.76	1012.06	1537.22	1669066.87	14317753.51	39°25'40.476"N	80°53'54.747"W	1840.46	56.640
6557.50	35.860	119.450	6212.77	-424.21	1003.40	1553.28	1669082.93	14317744.85	39°25'40.390"N	80°53'54.542"W	1849.19	57.138

Operator	Area	Field	Facility
ANTERO RESOURCES CORPORATION	Tyler County, WV	Tyler	Vera Pad
Slot	Well	Wellbore	
Slot #13	Emerger Unit 3H	Emerger Unit 3H AWB	

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Emerger Unit 3H AWP Proj: 15857
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REFERENCE WELLPATH IDENTIFICATION		Slot #13
Operator	ANTERO RESOURCES CORPORATION	Emerger Unit 3H
Area	Tyler County, WV	Emerger Unit 3H AWB
Field	Tyler	
Facility	Vera Pad	

WELLPATH DATA (202 stations) † = interpolated/extrapolated station																
MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	VertSect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (F/100ft)	Build Rate (F/100ft)	Turn Rate (F/100ft)	Comments
6588.50	37.010	123.180	6237.71	-409.92	993.83	1569.00	1669098.64	14317735.29	39°25'40.295"N	80°53'54.342"W	1857.27	57.649	8.05	3.71	12.03	
6620.50	38.610	126.830	6262.99	-393.93	982.57	1585.05	1669114.69	14317724.03	39°25'40.184"N	80°53'54.137"W	1864.90	58.205	8.59	5.00	11.41	
6651.50	41.070	129.630	6286.80	-377.11	970.27	1600.64	1669130.27	14317711.74	39°25'40.062"N	80°53'53.939"W	1871.76	58.777	9.82	7.94	9.03	
6683.50	43.230	132.470	6310.52	-358.40	956.17	1616.83	1669146.45	14317697.64	39°25'39.923"N	80°53'53.733"W	1878.40	59.401	9.00	6.75	8.88	
6715.50	43.690	135.920	6333.75	-338.65	940.82	1632.60	1669162.22	14317682.31	39°25'39.771"N	80°53'53.532"W	1884.29	60.046	7.55	1.44	10.78	
6756.00	41.850	142.990	6363.50	-313.01	919.97	1650.48	1669180.09	14317661.46	39°25'39.565"N	80°53'53.305"W	1889.56	60.865	12.69	-4.54	17.46	BHI AT Curve <8-1/2"> (6715.5')(6756'-15833')
6811.00	43.810	147.820	6403.84	-276.91	889.20	1671.67	1669201.27	14317630.70	39°25'39.260"N	80°53'53.035"W	1893.45	61.990	6.95	3.56	8.78	
6830.00†	46.128	148.767	6417.28	-263.78	877.77	1678.72	1669208.32	14317619.28	39°25'39.147"N	80°53'52.945"W	1894.36	62.396	12.70	12.20	4.99	Middlesex: 6830' MD
6859.00	49.680	150.080	6436.72	-242.66	859.25	1689.66	1669219.25	14317600.76	39°25'38.964"N	80°53'52.806"W	1895.59	63.045	12.70	12.25	4.53	
6906.00	54.520	150.620	6465.59	-206.15	827.02	1708.00	1669237.58	14317566.55	39°25'38.645"N	80°53'52.573"W	1897.69	64.163	10.34	10.30	1.15	
6954.00	59.850	151.270	6491.59	-166.38	791.77	1727.57	1669257.15	14317533.31	39°25'38.297"N	80°53'52.324"W	1900.37	65.377	11.16	11.10	1.35	
7001.00	64.610	151.180	6513.48	-125.33	755.33	1747.59	1669277.16	14317496.88	39°25'37.936"N	80°53'52.069"W	1903.83	66.625	10.13	10.13	-0.19	Burket: 7001' MD
7049.00	68.880	150.870	6532.43	-81.83	716.76	1768.95	1669298.51	14317458.33	39°25'37.555"N	80°53'51.798"W	1908.64	67.943	8.92	8.90	-0.65	
7078.00†	70.811	150.330	6542.42	-55.01	693.04	1782.31	1669311.87	14317434.62	39°25'37.320"N	80°53'51.628"W	1912.31	68.752	6.88	6.66	-1.84	Tully: 7078' MD
7096.00	72.010	150.010	6548.16	-38.22	678.24	1790.80	1669320.35	14317419.83	39°25'37.174"N	80°53'51.520"W	1914.93	69.256	6.88	6.66	-1.81	
7144.00	72.230	150.370	6562.90	6.74	638.60	1813.51	1669343.05	14317380.21	39°25'36.782"N	80°53'51.231"W	1922.66	70.601	0.85	0.46	0.75	
7166.00†	73.630	150.412	6569.35	27.45	620.32	1823.90	1669353.44	14317361.93	39°25'36.601"N	80°53'51.099"W	1926.50	71.216	6.36	6.36	0.19	Marcellus POE: 7166' MD
7191.00	75.220	150.460	6576.07	51.17	599.37	1835.78	1669365.31	14317340.99	39°25'36.394"N	80°53'50.948"W	1931.15	71.918	6.36	6.36	0.19	
7239.00	79.000	151.330	6586.77	97.31	558.50	1858.53	1669388.06	14317300.13	39°25'35.990"N	80°53'50.658"W	1940.63	73.274	8.07	7.87	1.81	
7286.00	84.050	151.880	6593.70	143.24	517.62	1880.63	1669410.15	14317259.27	39°25'35.585"N	80°53'50.377"W	1950.56	74.611	10.81	10.74	1.17	
7334.00	89.750	151.960	6596.29	190.62	475.35	1903.18	1669432.69	14317217.01	39°25'35.167"N	80°53'50.091"W	1961.64	75.976	11.88	11.88	0.17	
7428.00	89.820	150.390	6596.64	283.40	393.00	1948.50	1669477.99	14317134.70	39°25'34.353"N	80°53'49.514"W	1987.74	78.597	1.67	0.07	-1.67	
7523.00	89.850	151.800	6596.92	377.15	309.83	1994.42	1669523.89	14317051.57	39°25'33.530"N	80°53'48.930"W	2018.34	81.170	1.48	0.03	1.48	
7618.00	89.780	153.210	6597.22	471.25	225.57	2038.27	1669567.73	14316967.33	39°25'32.697"N	80°53'48.373"W	2050.72	83.685	1.49	-0.07	1.48	
7713.00	89.940	157.660	6597.46	565.87	139.19	2077.76	1669607.20	14316880.99	39°25'31.843"N	80°53'47.871"W	2082.42	86.168	4.69	0.17	4.68	
7809.00	90.250	156.940	6597.30	661.72	50.62	2114.81	1669644.23	14316792.46	39°25'30.967"N	80°53'47.400"W	2115.41	88.629	0.82	0.32	-0.75	
7903.00	90.180	155.920	6596.94	755.50	-35.53	2152.39	1669681.80	14316706.34	39°25'30.115"N	80°53'46.922"W	2152.69	90.946	1.09	-0.07	-1.09	
7998.00	90.490	162.130	6596.39	850.42	-124.19	2186.38	1669715.78	14316617.72	39°25'29.239"N	80°53'46.491"W	2189.91	93.251	6.54	0.33	6.54	
8093.00	90.310	165.470	6595.72	945.24	-215.40	2212.88	1669742.26	14316526.54	39°25'28.337"N	80°53'46.154"W	2223.34	95.560	3.52	-0.19	3.52	
8188.00	90.520	164.810	6595.04	1039.91	-307.22	2237.24	1669766.62	14316434.76	39°25'27.429"N	80°53'45.845"W	2258.24	97.819	0.73	0.22	-0.69	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #13
Area	Tyler County, WV	Well	Emerger Unit 3H
Field	Tyler	Wellbore	Emerger Unit 3H AWB
Facility	Vera Pad		

WELLPATH DATA (202 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
8283.00	90.400	162.390	6594.27	1134.75	-398.35	2264.06	1669793.43	14316343.67	39°25'26.528"N	80°53'45.505"W	2298.84	99.979	2.55	-0.13	-2.55	
8378.00	90.060	160.210	6593.89	1229.73	-488.33	2294.52	1669823.87	14316253.73	39°25'25.638"N	80°53'45.118"W	2345.91	102.015	2.32	-0.36	-2.29	
8473.00	89.910	157.820	6593.92	1324.70	-577.02	2328.54	1669857.88	14316165.07	39°25'24.761"N	80°53'44.686"W	2398.97	103.918	2.52	-0.16	-2.52	
8567.00	90.000	160.430	6593.99	1418.67	-664.84	2362.03	1669891.35	14316077.28	39°25'23.893"N	80°53'44.260"W	2453.81	105.720	2.78	0.10	2.78	
8663.00	90.090	163.690	6593.92	1514.61	-756.16	2391.60	1669920.91	14315985.00	39°25'22.990"N	80°53'43.885"W	2508.29	107.546	3.40	0.09	3.40	
8757.00	90.150	164.530	6593.72	1608.42	-846.57	2417.33	1669946.63	14315895.63	39°25'22.096"N	80°53'43.558"W	2561.28	109.301	0.90	0.06	0.89	
8852.00	90.150	165.410	6593.47	1703.11	-938.32	2441.97	1669971.26	14315803.92	39°25'21.189"N	80°53'43.246"W	2616.04	111.019	0.93	0.00	0.93	
8947.00	90.220	164.370	6593.16	1797.82	-1030.03	2466.73	1669996.01	14315712.24	39°25'20.283"N	80°53'42.931"W	2673.15	112.664	1.10	0.07	-1.09	
9042.00	90.150	162.800	6592.86	1892.67	-1121.16	2493.58	1670022.85	14315621.15	39°25'19.382"N	80°53'42.591"W	2734.03	114.210	1.65	-0.07	-1.65	
9137.00	90.280	160.880	6592.50	1987.63	-1211.42	2523.18	1670052.44	14315530.92	39°25'18.489"N	80°53'42.215"W	2798.93	115.646	2.03	0.14	-2.02	
9232.00	90.150	158.240	6592.14	2082.61	-1300.43	2556.36	1670085.60	14315441.95	39°25'17.609"N	80°53'41.793"W	2868.12	116.963	2.78	-0.14	-2.78	
9327.00	90.220	157.590	6591.84	2177.52	-1388.46	2592.08	1670121.31	14315353.96	39°25'16.739"N	80°53'41.340"W	2940.52	118.176	0.69	0.07	-0.68	
9422.00	90.150	158.090	6591.53	2272.43	-1476.44	2627.91	1670157.13	14315266.01	39°25'15.869"N	80°53'40.884"W	3014.26	119.329	0.53	-0.07	0.53	
9517.00	90.120	157.420	6591.31	2367.33	-1564.37	2663.87	1670193.08	14315178.12	39°25'14.999"N	80°53'40.427"W	3089.25	120.424	0.71	-0.03	-0.71	
9613.00	90.060	158.000	6591.16	2463.22	-1653.20	2700.28	1670229.47	14315089.33	39°25'14.121"N	80°53'39.965"W	3166.16	121.476	0.61	-0.06	0.60	
9707.00	90.150	159.170	6590.98	2557.17	-1740.70	2734.61	1670263.78	14315001.85	39°25'13.256"N	80°53'39.529"W	3241.62	122.479	1.25	0.10	1.24	
9803.00	90.120	161.020	6590.76	2653.17	-1830.97	2767.29	1670296.45	14314911.63	39°25'12.363"N	80°53'39.114"W	3318.18	123.490	1.93	-0.03	1.93	
9898.00	90.220	161.280	6590.47	2748.16	-1920.87	2797.98	1670327.13	14314821.76	39°25'11.474"N	80°53'38.724"W	3393.88	124.470	0.29	0.11	0.27	
9993.00	90.090	160.660	6590.22	2843.15	-2010.68	2828.96	1670358.09	14314731.99	39°25'10.586"N	80°53'38.330"W	3470.71	125.403	0.67	-0.14	-0.65	
10088.00	90.120	160.580	6590.04	2938.15	-2100.29	2860.48	1670389.61	14314642.41	39°25'09.700"N	80°53'37.930"W	3548.74	126.288	0.09	0.03	-0.08	
10183.00	90.250	160.470	6589.74	3033.15	-2189.86	2892.15	1670421.26	14314552.88	39°25'08.815"N	80°53'37.528"W	3627.68	127.132	0.18	0.14	-0.12	
10278.00	90.120	160.420	6589.43	3128.15	-2279.38	2923.95	1670453.05	14314463.40	39°25'07.929"N	80°53'37.124"W	3707.43	127.938	0.15	-0.14	-0.05	
10372.00	90.120	158.620	6589.23	3222.13	-2367.43	2956.84	1670485.92	14314375.38	39°25'07.059"N	80°53'36.706"W	3787.83	128.683	1.91	0.00	-1.91	
10467.00	90.150	158.240	6589.01	3317.08	-2455.78	2991.76	1670520.84	14314287.06	39°25'06.185"N	80°53'36.263"W	3870.59	129.381	0.40	0.03	-0.40	
10562.00	90.060	157.820	6588.84	3412.00	-2543.88	3027.31	1670556.36	14314199.00	39°25'05.314"N	80°53'35.811"W	3954.23	130.041	0.45	-0.09	-0.44	
10657.00	90.090	157.200	6588.71	3506.87	-2631.65	3063.64	1670592.69	14314111.26	39°25'04.446"N	80°53'35.349"W	4038.75	130.662	0.65	0.03	-0.65	
10752.00	89.910	156.710	6588.71	3601.70	-2719.07	3100.83	1670629.86	14314023.88	39°25'03.582"N	80°53'34.877"W	4124.14	131.247	0.55	-0.19	-0.52	
10847.00	89.350	158.120	6589.32	3696.57	-2806.78	3137.32	1670666.33	14313936.20	39°25'02.714"N	80°53'34.413"W	4209.61	131.817	1.60	-0.59	1.48	
10942.00	90.090	163.540	6589.79	3791.53	-2896.48	3168.50	1670697.50	14313846.54	39°25'01.827"N	80°53'34.017"W	4292.90	132.432	5.76	0.78	5.71	
11037.00	90.060	162.590	6589.66	3886.42	-2987.36	3196.17	1670725.16	14313755.70	39°25'00.929"N	80°53'33.666"W	4374.91	133.066	1.00	-0.03	-1.00	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #13
Area	Tyler County, WV	Well	Emerger Unit 3H
Field	Tyler	Wellbore	Emerger Unit 3H AWB
Facility	Vera Pad		

WELLPATH DATA (202 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
11132.00	90.460	160.470	6589.23	3981.40	-3077.46	3226.27	1670755.24	14313665.63	39°25'00.038"N	80°53'33.284"W	4458.65	133.648	2.27	0.42	-2.23	
11227.00	90.370	162.480	6588.55	4076.38	-3167.53	3256.45	1670785.41	14313575.60	39°24'59.147"N	80°53'32.901"W	4542.87	134.207	2.12	-0.09	2.12	
11322.00	90.150	161.270	6588.11	4171.34	-3257.81	3286.00	1670814.95	14313485.35	39°24'58.255"N	80°53'32.526"W	4627.22	134.753	1.29	-0.23	-1.27	
11417.00	90.220	159.670	6587.81	4266.34	-3347.34	3317.76	1670846.70	14313395.86	39°24'57.370"N	80°53'32.123"W	4712.98	135.254	1.69	0.07	-1.68	
11512.00	90.060	161.550	6587.58	4361.33	-3436.95	3349.29	1670878.22	14313306.29	39°24'56.484"N	80°53'31.722"W	4799.00	135.740	1.99	-0.17	1.98	
11606.00	89.970	162.380	6587.55	4455.30	-3526.33	3378.40	1670907.31	14313216.94	39°24'55.600"N	80°53'31.353"W	4883.50	136.227	0.89	-0.10	0.88	
11701.00	90.030	163.690	6587.55	4550.19	-3617.20	3406.12	1670935.02	14313126.11	39°24'54.701"N	80°53'31.001"W	4968.47	136.721	1.38	0.06	1.38	
11796.00	90.090	163.880	6587.45	4645.03	-3708.42	3432.64	1670961.54	14313034.93	39°24'53.800"N	80°53'30.664"W	5053.26	137.212	0.21	0.06	0.20	
11890.00	90.180	163.260	6587.23	4738.88	-3798.58	3459.23	1670988.11	14312944.80	39°24'52.908"N	80°53'30.327"W	5137.65	137.677	0.67	0.10	-0.66	
11984.00	90.060	161.490	6587.03	4832.82	-3888.16	3487.69	1671016.56	14312855.26	39°24'52.022"N	80°53'29.966"W	5223.20	138.108	1.89	-0.13	-1.88	
12078.00	89.940	159.430	6587.03	4926.82	-3976.74	3519.13	1671047.99	14312766.71	39°24'51.146"N	80°53'29.566"W	5310.25	138.494	2.20	-0.13	-2.19	
12173.00	89.570	159.060	6587.44	5021.80	-4065.58	3552.79	1671081.64	14312677.91	39°24'50.268"N	80°53'29.139"W	5399.19	138.851	0.55	-0.39	-0.39	
12268.00	89.880	160.710	6587.90	5116.79	-4154.78	3585.46	1671114.30	14312588.75	39°24'49.386"N	80°53'28.724"W	5487.96	139.207	1.77	0.33	1.74	
12363.00	89.480	161.170	6588.43	5211.78	-4244.57	3616.49	1671145.31	14312498.99	39°24'48.498"N	80°53'28.330"W	5576.32	139.568	0.64	-0.42	0.48	
12458.00	89.720	159.940	6589.09	5306.78	-4334.15	3648.11	1671176.92	14312409.45	39°24'47.613"N	80°53'27.929"W	5665.12	139.912	1.32	0.25	-1.29	
12552.00	89.750	157.720	6589.52	5400.74	-4421.80	3682.05	1671210.85	14312321.84	39°24'46.746"N	80°53'27.497"W	5754.11	140.216	2.36	0.03	-2.36	
12647.00	89.170	158.640	6590.42	5495.66	-4509.98	3717.36	1671246.14	14312233.68	39°24'45.874"N	80°53'27.049"W	5844.55	140.503	1.14	-0.61	0.97	
12742.00	90.090	159.670	6591.03	5590.63	-4598.76	3751.17	1671279.93	14312144.94	39°24'44.996"N	80°53'26.620"W	5934.63	140.796	1.45	0.97	1.08	
12837.00	90.000	159.460	6590.96	5685.62	-4687.78	3784.34	1671313.09	14312055.96	39°24'44.116"N	80°53'26.198"W	6024.66	141.087	0.24	-0.09	-0.22	
12932.00	89.940	156.050	6591.01	5780.51	-4775.70	3820.29	1671349.03	14311968.07	39°24'43.246"N	80°53'25.742"W	6115.71	141.342	3.59	-0.06	-3.59	
13027.00	89.600	154.700	6591.39	5875.14	-4862.06	3859.88	1671388.60	14311881.75	39°24'42.392"N	80°53'25.239"W	6207.92	141.555	1.47	-0.36	-1.42	
13123.00	89.880	154.890	6591.83	5970.68	-4948.92	3900.76	1671429.47	14311794.93	39°24'41.533"N	80°53'24.719"W	6301.40	141.755	0.35	0.29	0.20	
13217.00	89.690	157.970	6592.18	6064.44	-5035.06	3938.34	1671467.03	14311708.82	39°24'40.682"N	80°53'24.242"W	6392.37	141.968	3.28	-0.20	3.28	
13313.00	90.370	159.530	6592.13	6160.40	-5124.53	3973.13	1671501.81	14311619.38	39°24'39.797"N	80°53'23.800"W	6484.34	142.213	1.77	0.71	1.63	
13408.00	90.460	157.010	6591.44	6255.32	-5212.77	4008.30	1671536.97	14311531.18	39°24'38.924"N	80°53'23.353"W	6575.67	142.442	2.65	0.09	-2.65	
13503.00	90.800	163.880	6590.39	6350.26	-5302.23	4040.08	1671568.73	14311441.75	39°24'38.040"N	80°53'22.950"W	6666.03	142.694	7.24	0.36	7.23	
13597.00	90.370	164.300	6589.43	6444.06	-5392.63	4065.85	1671594.49	14311351.39	39°24'37.146"N	80°53'22.623"W	6753.63	142.985	0.64	-0.46	0.45	
13693.00	90.370	165.460	6588.81	6539.76	-5485.30	4090.89	1671619.52	14311258.76	39°24'36.230"N	80°53'22.305"W	6842.80	143.285	1.21	0.00	1.21	
13787.00	90.520	165.800	6588.08	6633.37	-5576.36	4114.21	1671642.84	14311167.74	39°24'35.330"N	80°53'22.009"W	6929.83	143.580	0.40	0.16	0.36	
13882.00	90.400	165.030	6587.32	6728.00	-5668.29	4138.14	1671666.75	14311075.84	39°24'34.421"N	80°53'21.706"W	7018.10	143.869	0.82	-0.13	-0.81	

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Operator	Area	Field	Facility
ANTERO RESOURCES CORPORATION	Tyler County, WV	Tyler	Vera Pad
Slot	Well	Wellbore	
Slot #13	Emergen Unit 3H	Emergen Unit 3H AWB	

WELLPATH DATA (202 stations)

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
13977.00	89.880	163.840	6587.09	6822.76	-5759.81	4163.63	14310984.36	14310984.36	39°24'33.516"N	80°53'21.383"W	7107.12	144.138	1.37	-0.55	-1.25	
14702.00	90.030	163.430	6587.16	6917.61	-5850.96	4190.39	14310893.25	14310893.25	39°24'32.615"N	80°53'21.043"W	7196.74	144.390	0.46	0.16	-0.43	
14167.00	89.880	164.600	6587.24	7012.42	-5942.28	4216.56	14310801.96	14310801.96	39°24'31.712"N	80°53'20.711"W	7286.29	144.641	1.24	-0.16	1.23	
14261.00	90.000	163.490	6587.34	7106.23	-6032.66	4242.39	14310711.62	14310711.62	39°24'30.818"N	80°53'20.383"W	7375.02	144.884	1.19	0.13	-1.18	
14355.00	89.910	161.880	6587.41	7200.15	-6122.40	4270.37	14310621.92	14310621.92	39°24'29.931"N	80°53'20.028"W	7464.57	145.104	1.72	-0.10	-1.71	
14450.00	90.220	158.800	6587.30	7295.14	-6211.85	4302.33	14310532.50	14310532.50	39°24'29.046"N	80°53'19.623"W	7556.26	145.294	3.26	0.33	-3.24	
14546.00	89.970	157.070	6587.14	7391.05	-6300.81	4338.39	14310443.57	14310443.57	39°24'28.167"N	80°53'19.165"W	7649.96	145.451	1.82	-0.26	-1.80	
14641.00	89.850	159.760	6587.29	7485.98	-6389.14	4373.33	14310355.28	14310355.28	39°24'27.293"N	80°53'18.721"W	7742.56	145.609	2.83	-0.13	2.83	
14735.00	89.910	157.630	6587.49	7579.93	-6476.71	4407.49	14310267.74	14310267.74	39°24'26.427"N	80°53'18.287"W	7834.14	145.764	2.27	0.06	-2.27	
14831.00	89.940	157.020	6587.62	7675.80	-6565.29	4444.49	14310179.20	14310179.20	39°24'25.551"N	80°53'17.817"W	7928.22	145.903	0.64	0.03	-0.64	
14926.00	89.970	157.300	6587.69	7770.64	-6652.84	4481.37	14310091.68	14310091.68	39°24'24.686"N	80°53'17.349"W	8021.41	146.036	0.30	0.03	0.29	
15021.00	90.060	158.410	6587.67	7865.55	-6740.83	4517.18	14310003.73	14310003.73	39°24'23.816"N	80°53'16.894"W	8114.42	146.173	1.17	0.09	-1.17	
15116.00	89.200	157.530	6588.28	7960.46	-6828.90	4552.81	14309915.70	14309915.70	39°24'22.945"N	80°53'16.441"W	8207.43	146.309	1.30	-0.91	-0.93	
15211.00	89.290	157.130	6588.53	8055.31	-6916.55	4589.42	14309828.09	14309828.09	39°24'22.078"N	80°53'15.976"W	8300.69	146.434	0.43	0.09	-0.42	
15306.00	89.290	158.870	6590.71	8150.22	-7004.62	4625.01	14309740.05	14309740.05	39°24'21.207"N	80°53'15.524"W	8393.77	146.564	1.83	0.00	1.83	
15401.00	89.290	160.290	6591.88	8245.20	-7093.64	4658.15	14309651.06	14309651.06	39°24'20.327"N	80°53'15.104"W	8486.35	146.708	1.49	0.00	1.49	
15496.00	89.380	163.430	6592.99	8340.15	-7183.90	4687.72	14309560.84	14309560.84	39°24'19.434"N	80°53'14.728"W	8578.06	146.874	3.31	0.09	3.31	
15590.00	89.230	163.830	6594.13	8433.99	-7274.08	4714.21	14309470.69	14309470.69	39°24'18.543"N	80°53'14.392"W	8668.11	147.053	0.45	-0.16	0.43	
15685.00	89.350	159.750	6595.31	8528.94	-7364.30	4743.89	14309380.51	14309380.51	39°24'17.651"N	80°53'14.016"W	8759.99	147.211	4.30	0.13	-4.29	
15780.00	89.260	159.300	6596.46	8623.92	-7453.29	4777.12	14309291.56	14309291.56	39°24'16.771"N	80°53'13.594"W	8852.82	147.343	0.48	-0.09	-0.47	
15833.00	89.230	159.570	6597.16	8676.91	-7502.91	4795.73	14309241.96	14309241.96	39°24'16.280"N	80°53'13.357"W	8904.65	147.414	0.51	-0.06	0.51	
15857.00	89.230	159.570	6597.48	8700.90	-7525.40	4804.11	14309219.48	14309219.48	39°24'16.058"N	80°53'13.251"W	8928.11	147.446	0.00	0.00	0.00	Projected MD at TD: 15857'

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Actual Wellpath Report

Emerger Unit 3H AWP Proj: 15857'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #13
Area	Tyler County, WV	Well	Emerger Unit 3H
Field	Tyler	Wellbore	Emerger Unit 3H AWB
Facility	Vera Pad		

HOLE & CASING SECTIONS - Ref Wellbore: Emerger Unit 3H AWB Ref Wellpath: Emerger Unit 3H AWP Proj: 15857'									
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	24.50	104.50	80.00	24.50	104.50	0.00	0.00	-0.07	0.10
17.5in Open Hole	104.50	723.70	619.20	104.50	723.69	-0.07	0.10	-2.62	1.02
13.375in Casing Surface	24.50	723.70	699.20	24.50	723.69	0.00	0.00	-2.62	1.02
12.25in Open Hole	723.70	2530.00	1806.30	723.69	2460.51	-2.62	1.02	274.52	370.84
9.625in Casing Intermediate	24.50	2530.00	2505.50	24.50	2460.51	0.00	0.00	274.52	370.84
8.75in Open Hole	2530.00	6776.50	4246.50	2460.51	6378.68	274.52	370.84	908.84	1658.59
8.5in Open Hole	6776.50	15857.00	9080.50	6378.68	6597.48	908.84	1658.59	-7525.40	4804.11
5.5in Casing Production	24.50	15857.00	15832.50	24.50	6597.48	0.00	0.00	-7525.40	4804.11

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Emerger Unit 3H POE - Rev-4	6566.00	669.02	1815.59	1669345.13	14317410.61	39°25'37.083"N	80°53'51.204"W	point
Emerger Unit 3H BHL - Rev-4	6592.00	-7514.55	4794.25	1672322.60	14309230.32	39°24'16.165"N	80°53'13.376"W	point
Emerger Unit 3H LP - Rev-3	6592.00	524.90	1898.83	1669428.34	14317266.55	39°25'35.657"N	80°53'50.145"W	point

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Actual Wellpath Report

Emerger Unit 3H AWP Proj: 15857'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #13
Area	Tyler County, WV	Well	Emerger Unit 3H
Field	Tyler	Wellbore	Emerger Unit 3H AWB
Facility	Vera Pad		

WELLPATH COMPOSITION - Ref Wellbore: Emerger Unit 3H AWB Ref Wellpath: Emerger Unit 3H AWP Proj: 15857'				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
24.50	721.50	Gyrodatta standard - Drop gyro or Multi-shot	01 Gyrodatta MS Gyro <17-1/2">(100'-712')	Emerger Unit 3H AWB
721.50	1047.50	Gyrodatta standard - Drop gyro or Multi-shot	02 Gyrodatta MS Gyro <12-1/4">(712')(744'-1038')	Emerger Unit 3H AWB
1047.50	2533.50	ISCWSA MWD, Rev. 4 (Standard)	03 WFT EM <12-1/4">(1038')(1083'-2524')	Emerger Unit 3H AWB
2533.50	6715.50	ISCWSA MWD, Rev. 4 (Standard)	04 WFT EM <8-3/4">(2524')(2666'-6706')	Emerger Unit 3H AWB
6715.50	15833.00	BHI AutoTrak Curve (Short)	05 BHI AT Curve <8-1/2">(6715.5')(6756'-15833')	Emerger Unit 3H AWB
15833.00	15857.00	Blind Drilling (std)	Projection to bit	Emerger Unit 3H AWB

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Actual Wellpath Report

Emerger Unit 3H AWP Proj: 15857'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #13
Area	Tyler County, WV	Well	Emerger Unit 3H
Field	Tyler	Wellbore	Emerger Unit 3H AWB
Facility	Vera Pad		

COMMENTS
<p>Wellpath general comments API: 47-095-02379-0000 BHI Job #: 8695841 Rig: Frontier 22 Duration: 08/06/2017-08/09/2017 Gyrodata MS Gyro <17-1/2"> (100'-712') Gyrodata MS Gyro <12-1/4"> (712')(744'-1038') WFT EM <12-1/4"> (1038')(1083'-2524') WFT EM <8-3/4"> (2524')(2666'-6706') BHI AT Curve <8-1/2"> (6715.5')(6756'-15833') Middlesex: 6830' MD Burket: 7001' MD Tully: 7078' MD Marcellus POE: 7166' MD Projected MD at TD: 15857'</p>

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/12/2018
Job End Date:	6/1/2018
State:	West Virginia
County:	Tyler
API Number:	47-095-02379-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Emerger Unit 3H
Latitude:	39.42518889
Longitude:	-80.90400833
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,596
Total Base Water Volume (gal):	19,445,027
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	87.88637	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.11797	

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SCALECHEK LP-70	Halliburton	Scale Inhibitor					
				Listed Below			
SP BREAKER	Halliburton	Breaker					
				Listed Below			
SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant					
				Listed Below			
FR-76	Halliburton	Friction Reducer					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant					
				Listed Below			
SAND-PREMIUM WHITE-30/50, BULK	Halliburton	Proppant					
				Listed Below			
TRIS(2-CHLOROETHYL)AMINE	Halliburton	Solvent					

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				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				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	11.95260	
			Inorganic salt	Proprietary	30.00000	0.01667	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01667	
			Acrylamide acrylate copolymer	Proprietary	30.00000	0.01667	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Guar gum	9000-30-0	100.00000	0.01415	
			Hydrochloric acid	7647-01-0	15.00000	0.01023	
			Ethylene glycol	107-21-1	60.00000	0.00594	
			Glutaraldehyde	111-30-8	30.00000	0.00379	
			Telmer	Proprietary	10.00000	0.00099	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00063	
			Sodium persulfate	7775-27-1	100.00000	0.00045	
			Ethanol	64-17-5	1.00000	0.00013	
			Sodium polyacrylate	9003-04-7	1.00000	0.00010	
			Methanol	67-56-1	60.00000	0.00009	
			Fatty acids, tall oil	Proprietary	30.00000	0.00004	
			Modified thiourea polymer	Proprietary	30.00000	0.00004	

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			Ethoxylated alcohols	Proprietary	30.00000	0.00004	
			Olefins	Proprietary	5.00000	0.00001	
			Phosphoric acid	7664-38-2	0.10000	0.00001	
			Propargyl alcohol	107-19-7	10.00000	0.00001	
			Acrylic acid	79-10-7	0.01000	0.00000	
			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)

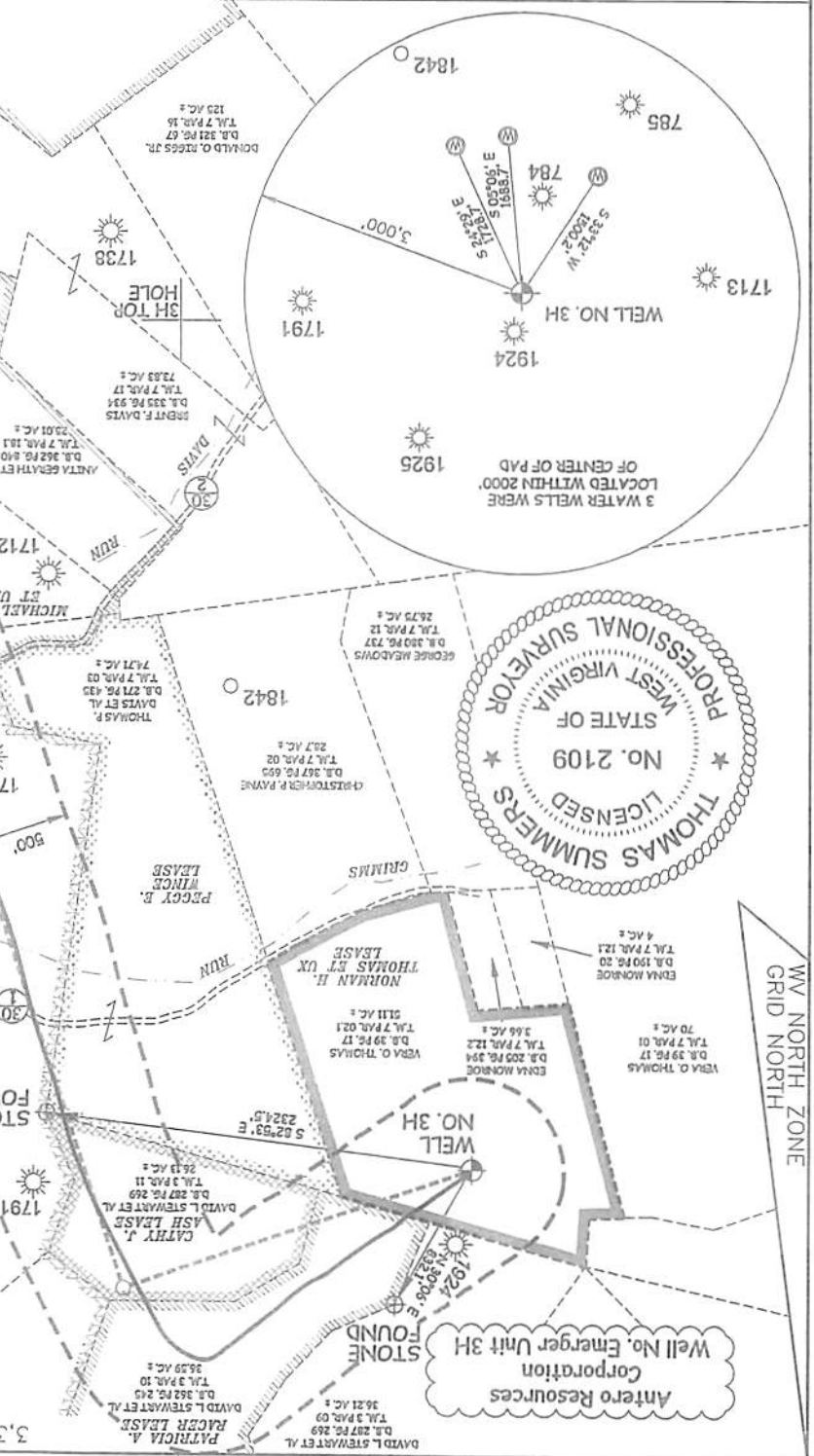
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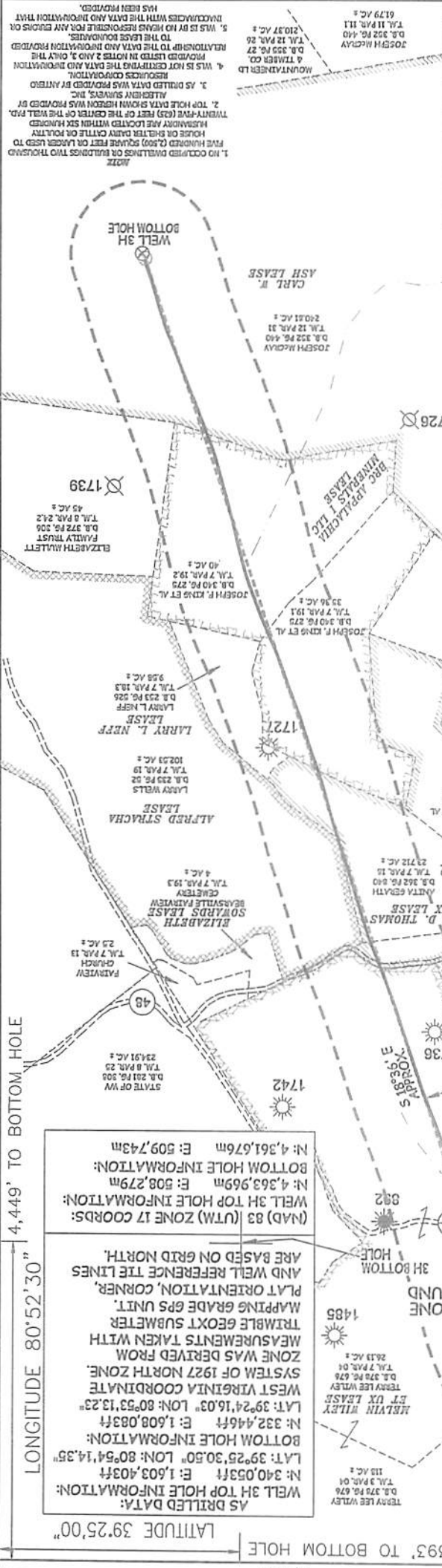
STATE OF WEST VIRGINIA, DIVISION
 OFFICE OF OIL AND GAS
 WILLOW LAND SURVEYING PLLC
 220 MASONIC AVE, PENNSBORO
 WEST VIRGINIA 26415

JOB # 16-020WA
DRAWING # EMERGER3HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. THOMAS SUMMERS P.S. 2109
DATE 10/12/18
OPERATOR'S WELL # EMERGER UNIT #3H

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAN IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



WELL TYPE: OIL
GAS X LIQUID INJECTION
WASTE DISPOSAL SHALLOW X DEEP
LOCATION: ELEVATION 1,148.1 AS BUILT
QUADRANGLE MIDDLEBOURNE 7.5
DISTRICT CENTERVILLE
COUNTY TYLER
ACREAGE 51.11 ACRES +/-
LEASE ACREAGE 125 AC.±; 36.59 AC.±; 30 AC.±;
17.1 AC.±; 55.3 AC.±; 48.13 AC.±; 17.74 AC.±; 382.8 AC.±
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL
OTHER PHYSICAL CHANGE IN WELL CLEAN OUT & REPLUG
ESTIMATED DEPTH 6,597' TVD 15,857' MD
DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 5400 D BIG TYLER ROAD
CHARLESTON, WV 25313



AS DRILLED DATA:
 WELL 3H TOP HOLE INFORMATION:
 LAT: 39°25'30.50" N; 80°54'14.35" W
 E: 1,603.403ft
 N: 340.053ft
 BOTTOM HOLE INFORMATION:
 LAT: 39°24'16.03" N; 80°53'13.23" W
 E: 1,608.083ft
 N: 332.446ft
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

WELL 3H (UTM) ZONE 17 COORDS:
 WELL 3H TOP HOLE INFORMATION:
 N: 4,363,969m E: 508,279m
 BOTTOM HOLE INFORMATION:
 N: 4,361,676m E: 509,743m

FORM WW-6
 DENVER, CO 80202
 ANTERO RESOURCES CORP.
 1615 WYNKHOOP ST.
 WELLS OPERATOR

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

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

NOT TO SCALE
 PAD LAYOUT

WV NORTH ZONE GRID NORTH
 8,188'
 3,393' TO BOTTOM HOLE
 4,449' TO BOTTOM HOLE
 12,091'
 LONGITUDE 80°52'30"
 LONGITUDE 80°52'00"

LATITUDE 39°27'30"

8,188'

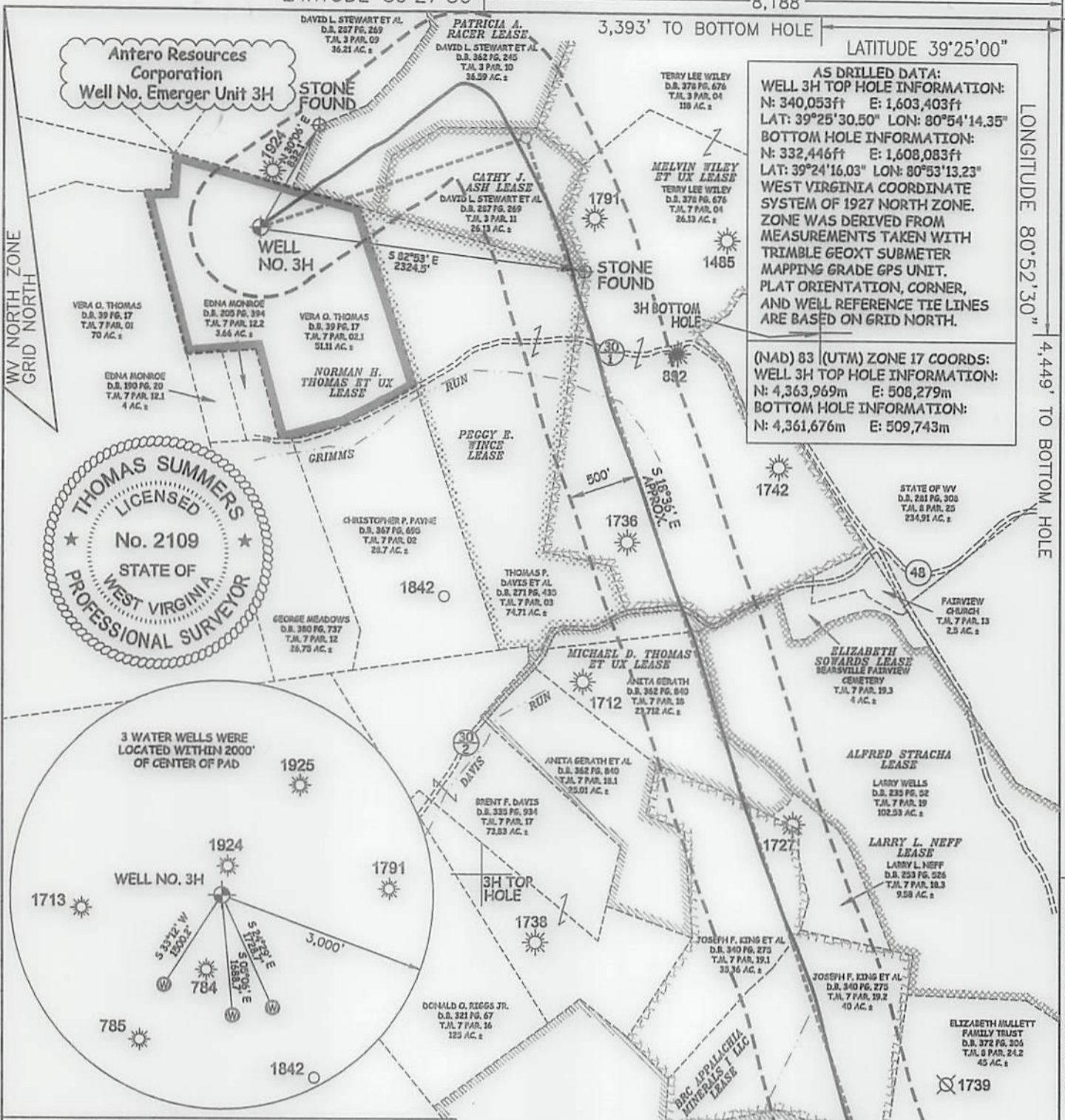
3,393' TO BOTTOM HOLE

LATITUDE 39°25'00"

LONGITUDE 80°52'30"

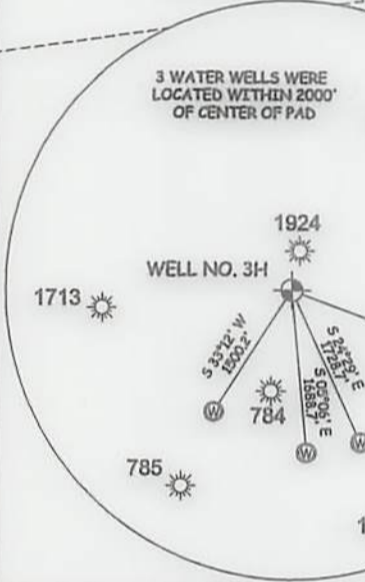
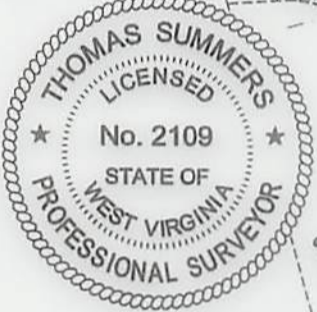
12,091'

LONGITUDE 80°52'30"



AS DRILLED DATA:
WELL 3H TOP HOLE INFORMATION:
 N: 340,053ft E: 1,603,403ft
 LAT: 39°25'30.50" LON: 80°54'14.35"
BOTTOM HOLE INFORMATION:
 N: 332,446ft E: 1,608,083ft
 LAT: 39°24'16.03" LON: 80°53'13.23"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE.
 ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE 660XT 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 3H TOP HOLE INFORMATION:
 N: 4,363,969m E: 508,279m
BOTTOM HOLE INFORMATION:
 N: 4,361,676m E: 509,743m



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



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

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

PAD LAYOUT
 NOT TO SCALE

MYSTIS UNIT 1H	10'
MYSTIS UNIT 2H	10'
MYSTIS UNIT 3H	10'
ANT UNIT 1H	10'
ANT UNIT 2H	10'
ANT UNIT 3H	10'
SAN JUAN UNIT 1H	10'
SAN JUAN UNIT 2H	10'
SAN JUAN UNIT 3H	10'
SAN JUAN UNIT 4H	10'
EMERGER UNIT 1H	10'
EMERGER UNIT 2H	10'
EMERGER UNIT 3H	10'
EMERGER UNIT 4H	10'

JOB # 16-020WA
 DRAWING # EMERGER3HAD
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

LEGEND

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

THOMAS SUMMERS P.S. 2109

DATE 10/12/18

OPERATOR'S WELL# EMERGER UNIT #3H

NOTE

- NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR PASTURE HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
- TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
- AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
- WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
- WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR IMPACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

WELL TYPE: OIL ___ GAS LIQUID INJECTION ___ WASTE DISPOSAL ___ 47 - 095 - 02379
 (IF "GAS") PRODUCTION STORAGE ___ DEEP ___ SHALLOW STATE COUNTY PERMIT
 LOCATION: ELEVATION 1,148.1 AS BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK
 QUADRANGLE MIDDLEBOURNE 7.5' DISTRICT CENTERVILLE COUNTY TYLER
 SURFACE OWNER VERA O. THOMAS ACREAGE 51.11 ACRES +/-
 OIL & GAS ROYALTY OWNER NORMAN H. THOMAS ET UX; PATRICIA A. RACER; CATHY J. ASH; LEASE ACREAGE 125 AC.±; 36.59 AC.±; 30 AC.±; PEGGY E. WINCE; MELVIN WILEY ET UX; MICHAEL D. THOMAS ET UX; BRC APPALACHIA MINERALS I LLC; CARL W. ASH 74.71 AC.±; 553.16 AC.±; 48.13 AC.±; 79.74 AC.±; 362.8 AC.±

PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___
 PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,597' TVD 15,857' 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

