

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

API 47 - 095 - 02380 County Tyler District Centerville
Quad Middlebourne 7.5' Pad Name Vera Pad Field/Pool Name -----
Farm name Vera O. Thomas Well Number San Juan Unit 1H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4363987m Easting 508273m
Landing Point of Curve Northing 4364150.45m Easting 508412.86m
Bottom Hole Northing 4366514m Easting 507573m

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 10/27/2016 Date drilling commenced 3/22/2017 Date drilling ceased 9/11/2017
Date completion activities began 1/24/2018 Date completion activities ceased 7/7/2018
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

Reviewed by JEB
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API 47-095 - 02380 Farm name Vera O. Thomas Well number San Juan Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/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"	738'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2585'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	15278'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6750'		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 ²)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	200 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	630 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	771 sx (Lead) 1318 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.53 (Lead), 1.83 (Tail)		-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15278' MD, 6546' TVD (BHL), 6595' (Deepest Point Drilled) Loggers TD (ft) 15278' MD
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5930'

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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API 47- 095 - 02380 Farm name Vera O. Thomas Well number San Juan Unit 1H

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>6560' (TOP)</u> TVD	<u>6795' (TOP)</u> MD
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

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

OPEN FLOW Gas 3167 mcfpd Oil 82 bpd NGL --- bpd Water 22 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 Philippi Pike City Clarksburg State WV Zip 26301

Please insert additional pages as applicable.

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

API 47-095-02380 Farm Name Vera O. Thomas Well Number San Juan Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	3/28/2018	15006.9	15175.4	60	Marcellus
2	3/29/2018	14807.1	14975.6	60	Marcellus
3	3/29/2018	14607.3	14775.8	60	Marcellus
4	3/30/2018	14407.5	14576	60	Marcellus
5	3/30/2018	14207.7	14376.2	60	Marcellus
6	3/31/2018	14007.9	14176.4	60	Marcellus
7	3/31/2018	13808.1	13976.6	60	Marcellus
8	4/1/2018	13608.3	13776.8	60	Marcellus
9	4/1/2018	13408.5	13577	60	Marcellus
10	4/2/2018	13208.7	13377.2	60	Marcellus
11	4/2/2018	13008.9	13177.4	60	Marcellus
12	4/3/2018	12809.1	12977.6	60	Marcellus
13	4/3/2018	12609.3	12777.8	60	Marcellus
14	4/3/2018	12409.5	12578	60	Marcellus
15	4/4/2018	12209.7	12378.2	60	Marcellus
16	4/4/2018	12009.9	12178.4	60	Marcellus
17	4/5/2018	11810.1	11978.6	60	Marcellus
18	4/5/2018	11610.3	11778.8	60	Marcellus
19	4/6/2018	11410.5	11579	60	Marcellus
20	4/6/2018	11210.7	11379.2	60	Marcellus
21	4/7/2018	11010.9	11179.4	60	Marcellus
22	4/7/2018	10811.1	10979.6	60	Marcellus
23	4/8/2018	10611.3	10779.8	60	Marcellus
24	4/8/2018	10411.5	10580	60	Marcellus
25	4/9/2018	10211.7	10380.2	60	Marcellus
26	4/9/2018	10011.9	10180.4	60	Marcellus
27	4/10/2018	9812.1	9980.6	60	Marcellus
28	4/10/2018	9612.3	9780.8	60	Marcellus
29	4/11/2018	9412.5	9581	60	Marcellus
30	4/11/2018	9212.7	9381.2	60	Marcellus
31	4/11/2018	9012.9	9181.4	60	Marcellus
32	4/12/2018	8813.1	8981.6	60	Marcellus
33	4/12/2018	8613.3	8781.8	60	Marcellus
34	4/13/2018	8413.5	8582	60	Marcellus
35	4/13/2018	8213.7	8382.2	60	Marcellus
36	4/14/2018	8013.9	8182.4	60	Marcellus
37	4/14/2018	7814.1	7982.6	60	Marcellus
38	4/15/2018	7614.3	7782.8	60	Marcellus
39	4/15/2018	7414.5	7583	60	Marcellus
40	4/16/2018	7214.7	7383.2	60	Marcellus
41	4/16/2018	7014.9	7183.4	60	Marcellus
42	4/17/2018	6815.1	6983.6	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	3/28/2018	74.62	6858	4948	3801	15607	8664	N/A
2	3/29/2018	75.17	7278	2163	3513	12954	8524	N/A
3	3/29/2018	75.5	7092	5723	3606	16421	8599	N/A
4	3/30/2018	75.88	7297	4618	3855	15770	9885	N/A
5	3/30/2018	74.9	7159	5241	3754	16154	8375	N/A
6	3/31/2018	76.35	7324	5584	3724	16632	8428	N/A
7	3/31/2018	76.5	7323	5743	3670	16736	8219	N/A
8	4/1/2018	75.24	7024	4875	3713	15612	8295	N/A
9	4/1/2018	76.25	7190	5134	3682	16006	8134	N/A
10	4/2/2018	76.61	7198	5680	3690	16568	8461	N/A
11	4/2/2018	75.5	7032	5779	3816	16627	8383	N/A
12	4/3/2018	78.11	7301	6053	3790	17144	8431	N/A
13	4/3/2018	77.61	7216	5724	3852	16792	8233	N/A
14	4/3/2018	76.5	7223	4964	3955	16142	8941	N/A
15	4/4/2018	76	6986	5759	4043	16788	8101	N/A
16	4/4/2018	76.9	7253	6815	3661	17729	8544	N/A
17	4/5/2018	74.89	6895	5702	3551	16148	8082	N/A
18	4/5/2018	77.1	7029	6486	3725	17240	8209	N/A
19	4/6/2018	72.02	7092	5144	4002	16238	9769	N/A
20	4/6/2018	77	7019	6768	3794	17581	8531	N/A
21	4/7/2018	76.5	6870	6396	3728	16994	8003	N/A
22	4/7/2018	76.7	6894	6747	3839	17480	8476	N/A
23	4/8/2018	77.52	6749	5507	3720	15976	8341	N/A
24	4/8/2018	76.58	6719	5588	3782	16089	7923	N/A
25	4/9/2018	77.2	6810	5172	3810	15792	8339	N/A
26	4/9/2018	75.5	6864	5596	3762	16222	7997	N/A
27	4/10/2018	76.4	6810	5102	3724	15636	8274	N/A
28	4/10/2018	76.2	7060	6106	3957	17123	8353	N/A
29	4/11/2018	76	7279	6047	4051	17377	8519	N/A
30	4/11/2018	76.1	6769	5770	3861	16400	8196	N/A
31	4/11/2018	76.5	6645	5552	3790	15987	8370	N/A
32	4/12/2018	76.7	6592	5842	3873	16307	8477	N/A
33	4/12/2018	73.7	6403	5785	3799	15987	8332	N/A
34	4/13/2018	75.6	6546	5718	3771	16035	8169	N/A
35	4/13/2018	72.3	6310	5940	3806	16056	8146	N/A
36	4/14/2018	77.9	6348	5492	3674	15514	8343	N/A
37	4/14/2018	76.3	6537	4959	4261	15757	7769	N/A
38	4/15/2018	77.3	6293	5892	3924	16109	8461	N/A
39	4/15/2018	64.8	7475	6268	5551	19294	8157	N/A
40	4/16/2018	76.55	6990	6454	3744	17188	10166	N/A
41	4/16/2018	72.9	6573	5972	3755	16300	8892	N/A
42	4/17/2018	78.1	6832	6929	4022	17783	8406	N/A
		75.8	6,932	5,660	3,843	690,295	354,917	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	2,047	N/A	2,048	N/A
Big Injun	2,220	N/A	2,220	N/A
Gantz Sand	2,679	N/A	2,680	N/A
Fifty Foot Sandstone	2,793	N/A	2,793	N/A
Gordon	2,942	N/A	2,942	N/A
Fifth Sandstone	3,079	N/A	3,080	N/A
Bayard	3,283	N/A	3,286	N/A
Warren	3,653	N/A	3,666	N/A
Speechley	4,036	N/A	4,057	N/A
Balltown	4,518	N/A	4,550	N/A
Bradford	4,710	N/A	4,747	N/A
Benson	4,954	N/A	4,998	N/A
Alexander	5,342	N/A	5,395	N/A
Rhinestreet	5,936	N/A	6,003	N/A
Sycamore	6,238	N/A	6,322	N/A
Middlesex	6,408	N/A	6,529	N/A
Burkett	6,504	N/A	6,669	N/A
Tully	6,530	N/A	6,718	N/A
Marcellus	6,560	N/A	6,795	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.

ANTERO RESOURCES CORPORATION

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

Slot: Slot #07
Well: San Juan Unit 1H
Wellbore: San Juan Unit 1H PWB



API: 47-095-02380-0000
BHI Job #: 8752021
Rig: Frontier 22
Duration: 09/05/2017-09/06/2017

Plot reference wellpath is San Juan Unit 1H PWP Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Frontier 22 (R&B)	North Reference: Grid north
Measured depths are referenced to Frontier 22 (R&B)	Scale: True distance
Frontier 22 (R&B) to Mean Sea Level: 1100.5 feet	Depths are in feet
Mean Sea Level to Mud line (At Slot Slot #07): -1145 feet	Created by: dclaset on 2017-10-31
Coordinates are in feet referenced to Slot	Database: WA_MPL_EasternUS_Defn

- Gyrodatta MS Gyro <17-1/2"> (100°-730') : 0.22° Inc, 109.50ft MD, 109.50ft TVD, -0.04ft VS
- Gyrodatta MS Gyro <12-1/4"> (730°\795°-1083') : 0.23° Inc, 804.50ft MD, 804.49ft TVD, -2.34ft VS
- WFT EM <12-1/4"> (1083°\1166°-2502') : 0.82° Inc, 1175.50ft MD, 1175.41ft TVD, 3.29ft VS

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #07	San Juan Unit 1H	San Juan Unit 1H AWB	San Juan Unit 1H AWB Proj: 15278
Slot #07	San Juan Unit 1H	San Juan Unit 1H PWB	San Juan Unit 1H PWP Rev-A.0

- WFT EM <8-3/4"> (2502°\2625°-6470') : 0.86° Inc, 2634.50ft MD, 2634.26ft TVD, -7.39ft VS

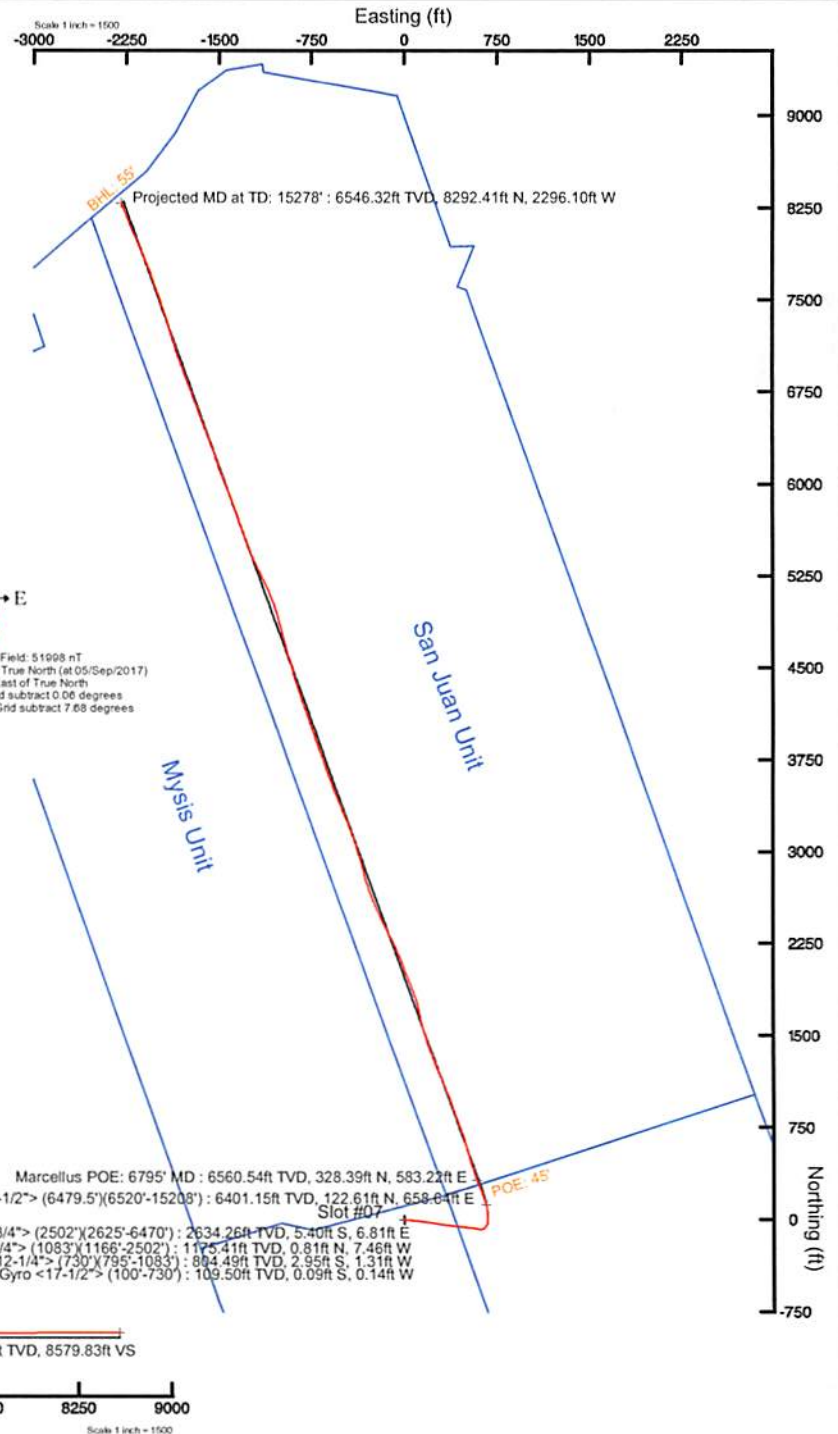
Location Information				
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Vera Pad	1667510.600	14316799.487	30°25'31.060"N	80°54'14.600"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)
Slot #07	0.00	0.00	1667510.600	14316799.487
Comment: San Juan Unit 1H		Frontier 22 (R&B) to Mud line (At Slot Slot #07): 24.5ft		
Mean Sea Level to Mud line (At Slot Slot #07): -1145ft		Frontier 22 (R&B) to Mean Sea Level: 1169.5ft		

Well Profile Data							
Design Comment	MD (ft)	Inc (")	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Te On	6479.50	36.480	348.870	8368.89	98.74	664.13	5.16
Proj To Bottom	6540.50	41.690	345.250	8418.24	136.18	655.46	9.35
End of 3D Arc	6595.36	47.484	343.903	8455.29	173.27	645.20	10.70
POE	6806.92	72.673	340.190	8560.00	346.03	588.43	12.00
Landing Pt	6980.19	90.000	340.190	8588.00	506.57	530.60	10.00
BHL	15265.66	90.000	340.190	8588.00	8301.70	-2277.41	0.00

- BHI AT Curve <8-1/2"> (6479.5°\6520°-15208') : 37.97° Inc, 6520.00ft MD, 6401.15ft TVD, -107.86ft VS
- Marcellus POE: 6795' MD : 70.84° Inc, 6795.00ft MD, 6560.54ft TVD, 111.30ft VS

Projected MD at TD: 15278' : 90.43° Inc, 15278.00ft MD, 6546.32ft TVD, 8579.83ft VS

Vertical Section (ft)
Azimuth 340.19° with reference 0.00 N, 0.00 E



Scale 1 inch = 100

True Vertical Depth (ft)

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Actual Wellpath Report

San Juan Unit 1H AWP Proj: 15278'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Tyler County, WV	Well	San Juan Unit 1H
Field	Tyler	Wellbore	San Juan Unit 1H AWB
Facility	Vera Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Delaset
Scale	0.999601	Report Generated	31/Oct/2017 at 16:11
Convergence at slot	0.06° East	Database/Source file	WA_MPL_EasternUS_Defn/San_Juan_Unit_1H_AWP_Proj_15278_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	1667510.60	14316799.49	39°25'31.060"N	80°54'14.600"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 #07)	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	340.19°

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Actual Wellpath Report

San Juan Unit 1H AWP Proj: 15278'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #07
Area	Tyler County, WV		Well	San Juan Unit 1H
Field	Tyler		Wellbore	San Juan Unit 1H AWB
Facility	Vera Pad			

WELLPATH DATA (188 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	237.500	0.00	0.00	0.00	0.00	1667510.60	14316799.49	39°25'31.060"N	80°54'14.600"W	0.00	0.000	0.00	0.00	0.00	
24.50	0.000	237.500	24.50	0.00	0.00	0.00	1667510.60	14316799.49	39°25'31.060"N	80°54'14.600"W	0.00	0.000	0.00	0.00	0.00	
109.50	0.220	237.500	109.50	-0.04	-0.09	-0.14	1667510.46	14316799.40	39°25'31.059"N	80°54'14.602"W	0.16	237.500	0.26	0.26	-144.12	Gyrodata MS Gyro <17-1/2"> (100'-730')
209.50	0.220	239.390	209.50	-0.11	-0.29	-0.46	1667510.13	14316799.20	39°25'31.057"N	80°54'14.606"W	0.55	238.163	0.01	0.00	1.89	
309.50	0.260	190.720	309.50	-0.35	-0.61	-0.67	1667509.93	14316798.88	39°25'31.054"N	80°54'14.609"W	0.91	227.812	0.20	0.04	-48.67	
409.50	0.380	212.590	409.50	-0.74	-1.11	-0.89	1667509.71	14316798.38	39°25'31.049"N	80°54'14.611"W	1.43	218.777	0.17	0.12	21.87	
509.50	0.430	206.390	509.49	-1.21	-1.73	-1.24	1667509.36	14316797.76	39°25'31.043"N	80°54'14.616"W	2.13	215.642	0.07	0.05	-6.20	
609.50	0.280	165.520	609.49	-1.71	-2.30	-1.34	1667509.26	14316797.19	39°25'31.037"N	80°54'14.617"W	2.66	210.304	0.28	-0.15	-40.87	
709.50	0.250	171.410	709.49	-2.17	-2.75	-1.25	1667509.35	14316796.74	39°25'31.033"N	80°54'14.616"W	3.02	204.435	0.04	-0.03	5.89	
739.50	0.260	169.600	739.49	-2.30	-2.88	-1.23	1667509.37	14316796.60	39°25'31.032"N	80°54'14.616"W	3.13	203.072	0.04	0.03	-6.03	
804.50	0.230	304.580	804.49	-2.34	-2.95	-1.31	1667509.29	14316796.53	39°25'31.031"N	80°54'14.617"W	3.23	203.896	0.70	-0.05	207.66	Gyrodata MS Gyro <12-1/4"> (730')(795'-1083')
899.50	0.970	299.730	899.48	-1.57	-2.45	-2.16	1667508.44	14316797.04	39°25'31.036"N	80°54'14.628"W	3.27	221.484	0.78	0.78	-5.11	
992.50	1.490	296.340	992.46	-0.10	-1.52	-3.93	1667506.67	14316797.97	39°25'31.045"N	80°54'14.650"W	4.22	248.851	0.56	0.56	-3.65	
1092.50	1.510	300.840	1092.43	1.86	-0.27	-6.23	1667504.37	14316799.22	39°25'31.057"N	80°54'14.679"W	6.23	267.530	0.12	0.02	4.50	
1175.50	0.820	330.120	1175.41	3.29	0.81	-7.46	1667503.14	14316800.29	39°25'31.068"N	80°54'14.695"W	7.51	276.171	1.07	-0.83	35.28	MFT EM <12-1/4"> (1083')(1166'-2502')
1207.50	0.740	341.700	1207.41	3.72	1.20	-7.64	1667502.96	14316800.69	39°25'31.072"N	80°54'14.697"W	7.74	278.936	0.55	-0.25	36.19	
1238.50	0.640	344.070	1238.41	4.09	1.56	-7.75	1667502.85	14316801.04	39°25'31.075"N	80°54'14.699"W	7.91	281.365	0.34	-0.32	7.65	
1332.50	0.560	33.340	1332.40	4.89	2.45	-7.64	1667502.96	14316801.93	39°25'31.084"N	80°54'14.697"W	8.03	287.750	0.54	-0.09	52.41	
1427.50	0.920	87.800	1427.40	4.94	2.86	-6.63	1667503.98	14316802.35	39°25'31.088"N	80°54'14.684"W	7.22	293.373	0.79	0.38	57.33	
1521.50	1.280	100.250	1521.38	4.19	2.71	-4.84	1667505.76	14316802.19	39°25'31.087"N	80°54'14.662"W	5.54	299.213	0.46	0.38	13.24	
1616.50	0.890	128.400	1616.36	3.03	2.06	-3.22	1667507.38	14316801.54	39°25'31.080"N	80°54'14.641"W	3.82	302.621	0.68	-0.41	29.63	
1711.50	0.780	170.960	1711.35	1.76	0.96	-2.54	1667508.06	14316800.45	39°25'31.070"N	80°54'14.632"W	2.71	290.767	0.65	-0.12	44.80	
1805.50	0.940	182.990	1805.34	0.43	-0.44	-2.48	1667508.12	14316799.05	39°25'31.056"N	80°54'14.632"W	2.52	259.931	0.26	0.17	12.80	
1900.50	0.500	156.990	1900.33	-0.71	-1.60	-2.36	1667508.25	14316797.89	39°25'31.044"N	80°54'14.630"W	2.85	235.820	0.57	-0.46	-27.37	
1995.50	0.570	119.140	1995.33	-1.48	-2.21	-1.78	1667508.82	14316797.28	39°25'31.038"N	80°54'14.623"W	2.84	218.845	0.37	0.07	-39.84	
2089.50	0.760	98.400	2089.32	-2.12	-2.53	-0.76	1667509.84	14316796.96	39°25'31.035"N	80°54'14.610"W	2.64	196.628	0.32	0.20	-22.06	
2184.50	0.800	102.880	2184.32	-2.78	-2.77	0.51	1667511.11	14316796.72	39°25'31.033"N	80°54'14.593"W	2.82	169.482	0.08	0.04	4.72	
2279.50	0.850	99.130	2279.31	-3.48	-3.03	1.86	1667512.46	14316796.46	39°25'31.030"N	80°54'14.576"W	3.55	148.499	0.08	0.05	-3.95	
2373.50	0.950	102.540	2373.29	-4.23	-3.31	3.31	1667513.90	14316796.18	39°25'31.027"N	80°54'14.558"W	4.68	135.032	0.12	0.11	3.63	
2468.50	0.890	118.970	2468.28	-5.21	-3.84	4.72	1667515.32	14316795.65	39°25'31.022"N	80°54'14.540"W	6.08	129.114	0.28	-0.06	17.29	



Actual Wellpath Report
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Operator	ANTERO RESOURCES CORPORATION
Area	Tyler County, WV
Field	Tyler
Facility	Vera Pad
Wellbore	San Juan Unit 1H AWB
Well	San Juan Unit 1H
Slot	Slot #07

REFERENCE WELLPATH IDENTIFICATION

MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
ft	°	°	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	ft	
2511.50	0.940	125.780	2511.28	-5.75	-4.21	5.30	1667515.90	14316795.28	39°25'31.018"N	80°54'14.533"W	6.76	128.442	0.28	0.12	15.84	
2634.50	0.860	130.970	2634.26	-7.39	-5.40	6.81	1667517.41	14316794.09	39°25'31.007"N	80°54'14.513"W	8.69	128.402	0.09	-0.07	4.22	MFT EM <B-3/4"> (2502)/(2625-6470)
2729.50	0.070	2729.26	2729.26	-7.97	-5.81	7.37	1667517.97	14316793.68	39°25'31.002"N	80°54'14.506"W	9.39	128.258	0.93	-0.83	-115.53	
2823.50	1.960	65.280	2823.24	-7.79	-5.09	8.85	1667519.45	14316794.40	39°25'31.010"N	80°54'14.487"W	10.21	119.885	2.01	46.87		
2918.50	3.680	85.550	2918.12	-8.46	-4.17	13.37	1667523.96	14316795.32	39°25'31.019"N	80°54'14.430"W	14.01	107.331	2.07	1.81	21.34	
3014.50	5.810	87.650	3013.79	-10.73	-3.73	21.30	1667531.89	14316795.75	39°25'31.023"N	80°54'14.329"W	21.62	99.944	2.23	2.22	2.19	
3108.50	7.600	91.960	3107.14	-14.46	-3.75	32.26	1667542.85	14316795.74	39°25'31.023"N	80°54'14.189"W	32.48	96.632	1.98	1.90	4.59	
3202.50	9.360	94.360	3201.10	-19.96	-4.55	46.25	1667556.83	14316794.93	39°25'31.015"N	80°54'14.011"W	46.47	95.623	1.89	1.85	2.53	
3297.50	10.860	94.880	3293.64	-26.79	-5.89	62.69	1667573.27	14316793.60	39°25'31.001"N	80°54'13.801"W	62.97	95.366	1.60	1.60	0.55	
3392.50	12.350	96.290	3386.69	-34.99	-7.76	81.71	1667592.28	14316791.73	39°25'30.982"N	80°54'13.559"W	82.08	95.427	1.60	1.57	1.48	
3486.50	11.820	93.660	3478.61	-43.25	-9.48	101.31	1667611.87	14316790.01	39°25'30.965"N	80°54'13.309"W	101.75	95.345	0.81	-0.56	-2.80	
3580.50	12.910	99.440	3570.43	-52.22	-11.82	142.28	1667631.83	14316787.68	39°25'30.942"N	80°54'13.055"W	121.85	95.565	1.75	1.16	6.15	
3676.50	12.570	97.790	3664.07	-62.30	-14.99	142.21	1667652.75	14316784.50	39°25'30.910"N	80°54'12.788"W	142.99	96.018	0.52	-0.35	-1.72	
3770.50	11.810	94.900	3755.95	-71.06	-17.20	161.92	1667672.46	14316782.30	39°25'30.888"N	80°54'12.537"W	162.84	96.063	1.04	-0.81	-3.07	
3864.50	13.070	98.800	3847.74	-80.17	-19.65	182.01	1667692.54	14316779.85	39°25'30.864"N	80°54'12.281"W	183.07	96.161	1.61	1.34	4.16	
3959.50	12.770	98.810	3940.34	-90.34	-22.90	203.00	1667713.52	14316776.60	39°25'30.832"N	80°54'12.013"W	204.29	96.435	0.32	-0.32	0.01	
4053.50	12.110	97.530	4032.13	-99.85	-25.78	223.05	1667733.56	14316773.72	39°25'30.803"N	80°54'11.758"W	224.53	96.593	0.76	-0.70	-1.36	
4147.50	11.430	95.520	4124.15	-108.36	-27.97	242.09	1667752.59	14316771.53	39°25'30.781"W	80°54'11.515"W	243.70	96.590	0.84	-0.72	-2.14	
4242.50	12.640	100.940	4217.07	-117.70	-30.85	261.67	1667772.16	14316768.65	39°25'30.752"N	80°54'11.266"W	263.48	96.723	1.74	1.27	5.71	
4337.50	12.150	100.950	4309.85	-128.13	-34.72	281.69	1667792.18	14316764.78	39°25'30.714"N	80°54'11.011"W	283.82	97.026	0.52	-0.52	0.01	
4431.50	12.890	98.040	4401.62	-138.09	-38.06	301.78	1667812.26	14316761.44	39°25'30.681"N	80°54'10.755"W	304.17	97.189	1.03	0.79	-3.10	
4526.50	12.490	96.690	4494.30	-147.62	-40.74	322.48	1667832.95	14316758.76	39°25'30.654"N	80°54'10.491"W	325.04	97.201	0.52	-0.42	-1.42	
4621.50	11.770	95.730	4587.17	-156.38	-42.91	342.32	1667852.78	14316756.50	39°25'30.632"N	80°54'10.238"W	345.00	97.144	0.79	-0.76	-1.01	
4716.50	13.240	98.740	4679.92	-165.76	-45.53	362.72	1667873.17	14316753.98	39°25'30.606"N	80°54'09.978"W	365.56	97.154	1.69	1.55	3.17	
4811.50	13.440	97.420	4772.36	-176.01	-48.61	384.42	1667894.86	14316750.90	39°25'30.576"N	80°54'09.702"W	387.48	97.206	0.38	0.21	-1.39	
4905.50	13.150	95.870	4863.84	-185.64	-51.11	405.89	1667916.32	14316748.40	39°25'30.551"N	80°54'09.428"W	409.09	97.177	0.49	-0.31	-1.65	
5000.50	12.750	95.330	4956.42	-194.78	-53.19	427.07	1667937.50	14316746.32	39°25'30.530"N	80°54'09.158"W	430.37	97.099	0.44	-0.42	-0.57	
5095.50	12.590	96.280	5049.11	-203.79	-55.30	447.80	1667958.22	14316744.21	39°25'30.509"N	80°54'08.894"W	451.21	97.040	0.28	-0.17	1.00	
5190.50	12.800	96.300	5141.79	-212.97	-57.58	468.56	1667978.97	14316741.93	39°25'30.486"N	80°54'08.630"W	472.08	97.006	0.22	0.22	0.02	
5284.50	12.970	95.030	5233.42	-221.98	-59.65	489.41	1667999.82	14316739.86	39°25'30.465"N	80°54'08.364"W	493.04	96.949	0.35	0.18	-1.35	

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Actual Wellpath Report

San Juan Unit 1H AWP Proj: 15278'

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #07
Area	Tyler County, WV		Well	San Juan Unit 1H
Field	Tyler		Wellbore	San Juan Unit 1H AWB
Facility	Vera Pad			

WELLPATH DATA (188 stations) + = interpolated/extrapolated station																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	Comments
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(US ft)	(US ft)			(ft)	(°)	(°/100ft)	(°/100ft)	(°/100ft)	
5378.50	12.590	98.240	5325.09	-231.23	-82.04	510.06	1668020.46	14316737.47	39°25'30.441"N	80°54'08.101"W	513.82	96.936	0.86	-0.40	3.41	
5473.50	12.540	97.640	5417.82	-240.86	-64.90	530.53	1668040.92	14316734.61	39°25'30.413"N	80°54'07.840"W	534.48	96.974	0.15	-0.05	-0.63	
5567.50	11.650	100.160	5509.73	-250.30	-67.93	549.99	1668060.36	14316731.58	39°25'30.383"N	80°54'07.592"W	554.17	97.041	1.10	-0.95	2.68	
5662.50	11.560	99.240	5602.79	-259.72	-71.15	568.82	1668079.19	14316728.36	39°25'30.351"N	80°54'07.352"W	573.26	97.130	0.22	-0.09	-0.97	
5756.50	11.730	99.140	5694.85	-268.91	-74.18	587.55	1668097.92	14316725.34	39°25'30.321"N	80°54'07.114"W	592.22	97.196	0.18	0.18	-0.11	
5851.50	12.320	98.890	5787.77	-278.46	-77.28	607.10	1668117.46	14316722.24	39°25'30.290"N	80°54'06.865"W	612.00	97.255	0.62	0.62	-0.26	
5882.50	12.560	99.590	5818.04	-281.70	-78.35	613.69	1668124.04	14316721.16	39°25'30.279"N	80°54'06.781"W	618.67	97.276	0.91	0.77	2.26	
5914.50	12.310	93.570	5849.29	-284.76	-79.15	620.53	1668130.88	14316720.37	39°25'30.271"N	80°54'06.694"W	625.55	97.269	4.12	-0.78	-18.81	
5946.50	12.000	84.180	5880.58	-286.92	-79.02	627.24	1668137.59	14316720.50	39°25'30.272"N	80°54'06.608"W	632.20	97.180	6.25	-0.97	-29.34	
5977.50	11.530	73.320	5910.93	-287.87	-77.81	633.42	1668143.76	14316721.71	39°25'30.284"N	80°54'06.529"W	638.18	97.003	7.29	-1.52	-35.03	
6008.50	11.820	62.070	5941.29	-287.59	-75.43	639.19	1668149.53	14316724.09	39°25'30.308"N	80°54'06.456"W	643.63	96.730	7.39	0.94	-36.29	
6040.50	12.980	49.760	5972.55	-285.87	-71.57	644.83	1668155.17	14316727.94	39°25'30.346"N	80°54'06.384"W	648.79	96.333	9.00	3.63	-38.47	
6071.50	14.540	39.270	6002.66	-282.65	-66.31	649.95	1668160.29	14316733.21	39°25'30.398"N	80°54'06.319"W	653.33	95.825	9.47	5.03	-33.84	
6102.50	15.650	34.110	6032.59	-278.19	-59.83	654.76	1668165.10	14316739.68	39°25'30.462"N	80°54'06.257"W	657.49	95.221	5.62	3.58	-16.65	
6133.50	16.750	33.700	6062.36	-273.07	-52.65	659.58	1668169.92	14316746.85	39°25'30.533"N	80°54'06.196"W	661.68	94.564	3.57	3.55	-1.32	
6165.50	17.260	26.610	6092.97	-267.06	-44.57	664.27	1668174.60	14316754.93	39°25'30.612"N	80°54'06.136"W	665.76	93.839	6.67	1.59	-22.16	
6196.50	16.860	15.830	6122.61	-260.23	-36.13	667.56	1668177.89	14316763.37	39°25'30.696"N	80°54'06.094"W	668.53	93.098	10.27	-1.29	-34.77	
6228.50	19.250	9.240	6153.04	-251.85	-26.46	669.67	1668180.00	14316773.04	39°25'30.791"N	80°54'06.067"W	670.19	92.263	9.81	7.47	-20.59	
6259.50	22.780	6.470	6181.97	-242.00	-15.45	671.17	1668181.50	14316784.04	39°25'30.900"N	80°54'06.047"W	671.35	91.319	11.83	11.39	-8.94	
6291.50	25.380	2.080	6211.18	-230.07	-2.44	672.11	1668182.44	14316797.05	39°25'31.029"N	80°54'06.035"W	672.12	90.208	9.86	8.13	-13.72	
6322.50	28.450	359.780	6238.82	-216.95	11.59	672.33	1668182.66	14316811.07	39°25'31.167"N	80°54'06.032"W	672.43	89.012	10.46	9.90	-7.42	
6353.50	31.230	357.720	6265.71	-202.33	27.01	671.98	1668182.31	14316826.48	39°25'31.320"N	80°54'06.037"W	672.52	87.698	9.56	8.97	-6.65	
6385.50	34.170	356.210	6292.64	-185.77	44.27	671.05	1668181.39	14316843.74	39°25'31.490"N	80°54'06.048"W	672.51	86.226	9.53	9.19	-4.72	
6416.50	36.090	354.380	6317.99	-168.55	62.04	669.59	1668179.92	14316861.50	39°25'31.666"N	80°54'06.067"W	672.45	84.706	7.06	6.19	-5.90	
6448.50	35.940	351.430	6343.88	-150.20	80.71	667.26	1668177.59	14316880.16	39°25'31.851"N	80°54'06.096"W	672.13	83.103	5.44	-0.47	-9.22	
6479.50	36.460	348.870	6368.89	-132.17	98.74	664.13	1668174.46	14316898.19	39°25'32.029"N	80°54'06.136"W	671.43	81.543	5.16	1.68	-8.26	
6520.00	37.970	345.300	6401.15	-107.86	122.61	658.64	1668168.98	14316922.04	39°25'32.265"N	80°54'06.205"W	669.96	79.455	6.50	3.73	-8.81	BHI AT Curve <8-1/2"> (6479.5')(6520'-15208')
6529.00†	38.870	344.567	6408.20	-102.29	128.01	657.19	1668167.53	14316927.44	39°25'32.318"N	80°54'06.224"W	669.54	78.978	11.21	10.00	-8.15	Middlesex: 6529' MD
6577.00	43.740	341.090	6444.25	-70.66	158.25	647.80	1668158.14	14316957.67	39°25'32.617"N	80°54'06.343"W	666.84	76.272	11.21	10.15	-7.24	
6624.00	49.850	339.350	6476.42	-36.42	190.46	636.18	1668146.53	14316989.87	39°25'32.936"N	80°54'06.490"W	664.08	73.334	13.28	13.00	-3.70	

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San Juan Unit 1H AWP Proj: 15278'
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Wellbore	San Juan Unit 1H AWB

WELLPATH DATA (188 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
6669.00	55.091	338.898	6503.82	-0.75	223.79	623.47	1668133.82	14317023.18	39°25'33.265"N	80°54'08.652"W	662.41	70.255	11.67	11.65	-1.00	Burkett: 6669' MD
6672.00	55.440	338.870	6505.53	1.71	226.09	622.58	1668132.93	14317025.48	39°25'33.288"N	80°54'08.663"W	662.36	70.042	11.67	11.65	-0.93	
6718.00	61.723	338.854	6529.50	40.94	262.66	608.36	1668118.72	14317062.04	39°25'33.650"N	80°54'08.844"W	662.64	66.848	13.67	13.66	-0.47	Tully: 6718' MD
6719.00	61.860	338.850	6529.97	41.82	263.48	608.04	1668118.40	14317062.86	39°25'33.658"N	80°54'08.848"W	662.67	66.572	13.67	13.66	-0.44	
6766.00	67.220	339.070	6550.16	84.23	303.04	592.75	1668103.11	14317102.41	39°25'34.049"N	80°54'07.042"W	665.72	62.921	11.43	11.40	0.89	
6795.00	70.835	339.721	6580.54	111.30	328.39	583.22	1668093.59	14317127.74	39°25'34.299"N	80°54'07.163"W	669.32	60.618	12.64	12.47	2.24	Marcellus POE: 6795' MD
6813.00	73.080	340.110	6566.12	128.41	344.46	577.35	1668087.71	14317143.81	39°25'34.458"N	80°54'07.238"W	672.30	59.179	12.64	12.47	2.16	
6861.00	78.670	341.840	6577.83	174.94	388.45	562.19	1668072.56	14317187.78	39°25'34.893"N	80°54'07.431"W	683.34	55.357	12.16	11.65	3.60	
6908.00	83.590	342.290	6585.07	221.33	432.62	547.89	1668058.27	14317231.93	39°25'35.330"N	80°54'07.612"W	698.10	51.705	10.51	10.47	0.96	
6956.00	89.720	343.070	6587.87	269.18	478.34	533.63	1668044.02	14317277.64	39°25'35.782"N	80°54'07.793"W	716.64	48.127	12.87	12.77	1.63	
7050.00	90.490	344.250	6587.70	363.01	568.54	507.19	1668017.59	14317367.80	39°25'36.674"N	80°54'08.129"W	761.89	41.736	1.50	0.82	1.26	
7146.00	90.250	343.620	6587.08	458.60	660.79	480.62	1667991.03	14317460.01	39°25'37.586"N	80°54'08.466"W	817.10	36.030	0.70	-0.25	-0.66	
7241.00	90.340	338.530	6586.59	553.76	750.63	449.82	1667960.24	14317549.81	39°25'38.474"N	80°54'08.858"W	875.09	30.933	5.36	0.09	-5.36	
7336.00	90.120	340.000	6586.21	648.74	839.47	416.19	1667926.62	14317638.62	39°25'39.352"N	80°54'09.285"W	936.97	26.371	1.56	-0.23	1.55	
7431.00	89.910	340.340	6586.18	743.74	928.84	383.96	1667894.41	14317727.95	39°25'40.236"N	80°54'09.694"W	1005.07	22.459	0.42	-0.22	0.36	
7526.00	89.480	339.700	6586.69	838.74	1018.12	351.50	1667861.96	14317817.19	39°25'41.119"N	80°54'10.107"W	1077.09	19.047	0.81	-0.45	-0.67	
7620.00	89.630	336.940	6587.42	932.72	1105.88	317.85	1667828.32	14317904.92	39°25'41.987"N	80°54'10.534"W	1150.65	16.036	1.46	0.16	-1.45	
7715.00	89.630	336.940	6588.03	1027.62	1193.73	281.71	1667792.20	14317992.74	39°25'42.855"N	80°54'10.994"W	1226.52	13.278	1.47	0.00	-1.47	
7809.00	89.570	338.580	6588.69	1121.53	1280.73	246.13	1667756.64	14318079.71	39°25'43.716"N	80°54'11.446"W	1304.17	10.879	1.75	-0.06	1.74	
7904.00	89.630	340.620	6589.35	1216.51	1369.77	213.02	1667723.54	14318168.71	39°25'44.596"N	80°54'11.867"W	1386.23	8.840	2.15	0.06	2.15	
7998.00	89.570	341.900	6590.01	1310.49	1458.78	182.82	1667693.35	14318257.68	39°25'45.476"N	80°54'12.250"W	1470.19	7.143	1.36	-0.06	1.36	
8093.00	89.540	343.920	6590.75	1405.38	1549.58	154.91	1667665.45	14318348.44	39°25'46.374"N	80°54'12.605"W	1557.30	5.709	2.13	-0.03	2.13	
8188.00	89.630	348.630	6591.44	1499.81	1641.84	132.38	1667642.92	14318440.67	39°25'47.286"N	80°54'12.891"W	1647.17	4.610	4.96	0.09	4.96	
8282.00	89.630	346.780	6592.04	1593.00	1733.68	112.36	1667622.91	14318532.47	39°25'48.194"N	80°54'13.145"W	1737.31	3.708	1.97	0.00	-1.97	
8377.00	89.660	340.320	6592.63	1687.79	1824.74	85.47	1667596.04	14318623.49	39°25'49.094"N	80°54'13.486"W	1826.74	2.882	6.80	0.03	-6.80	
8472.00	89.600	338.280	6593.25	1782.77	1913.60	51.90	1667562.47	14318712.32	39°25'49.972"N	80°54'13.913"W	1914.30	1.553	2.15	-0.06	-2.15	
8566.00	89.570	338.620	6593.93	1876.72	2001.03	17.37	1667527.96	14318799.71	39°25'50.837"N	80°54'14.352"W	2001.10	0.497	0.36	-0.03	0.36	
8661.00	89.630	339.240	6594.59	1971.70	2089.67	-16.78	1667493.82	14318888.32	39°25'51.713"N	80°54'14.786"W	2089.74	359.540	0.66	0.08	0.65	
8755.00	89.780	336.420	6595.07	2065.61	2176.71	-52.25	1667458.37	14318975.33	39°25'52.574"N	80°54'15.236"W	2177.34	358.625	3.00	0.16	-3.00	
8851.00	90.220	333.270	6595.07	2161.18	2263.60	-93.05	1667417.58	14319062.17	39°25'53.433"N	80°54'15.755"W	2265.51	357.646	3.31	0.46	-3.28	

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REFERENCE WELLPATH IDENTIFICATION				
Operator	ANTERO RESOURCES CORPORATION		Slot	Slot #07
Area	Tyler County, WV		Well	San Juan Unit 1H
Field	Tyler		Wellbore	San Juan Unit 1H AWB
Facility	Vera Pad			

WELLPATH DATA (188 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
8945.00	90.280	332.360	6594.66	2254.40	2347.21	-136.00	1667374.66	14319145.76	39°25'54.260"N	80°54'16.301"W	2351.15	356.684	0.97	0.06	-0.97	
9041.00	90.120	334.710	6594.33	2349.74	2433.14	-178.78	1667331.90	14319231.65	39°25'55.110"N	80°54'16.845"W	2439.70	355.798	2.45	-0.17	2.45	
9136.00	90.220	336.720	6594.05	2444.45	2519.73	-217.84	1667292.84	14319318.21	39°25'55.966"N	80°54'17.342"W	2529.13	355.059	2.12	0.11	2.12	
9231.00	90.180	338.160	6593.71	2539.33	2607.46	-254.29	1667256.41	14319405.90	39°25'56.833"N	80°54'17.805"W	2619.83	354.430	1.52	-0.04	1.52	
9325.00	90.280	340.180	6593.34	2633.31	2695.31	-287.71	1667223.00	14319493.72	39°25'57.702"N	80°54'18.230"W	2710.62	353.907	2.15	0.11	2.15	
9420.00	90.490	344.490	6592.70	2728.22	2785.81	-316.53	1667194.19	14319584.18	39°25'58.597"N	80°54'18.596"W	2803.73	353.518	4.54	0.22	4.54	
9515.00	90.490	344.870	6591.89	2822.93	2877.43	-341.63	1667169.10	14319675.76	39°25'59.503"N	80°54'18.915"W	2897.64	353.229	0.40	0.00	0.40	
9610.00	90.770	344.490	6590.84	2917.63	2969.05	-366.73	1667144.01	14319767.34	39°26'00.408"N	80°54'19.234"W	2991.61	352.959	0.50	0.29	-0.40	
9705.00	90.520	341.660	6589.77	3012.49	3059.92	-394.38	1667116.37	14319858.18	39°26'01.307"N	80°54'19.585"W	3085.23	352.656	2.99	-0.26	-2.98	
9799.00	90.520	339.640	6588.92	3106.48	3148.60	-425.53	1667085.24	14319946.82	39°26'02.184"N	80°54'19.981"W	3177.22	352.303	2.15	0.00	-2.15	
9894.00	90.430	337.890	6588.13	3201.45	3237.14	-459.93	1667050.85	14320035.33	39°26'03.059"N	80°54'20.418"W	3269.65	351.914	1.84	-0.09	-1.84	
9989.00	90.370	337.560	6587.47	3296.36	3325.05	-495.94	1667014.86	14320123.20	39°26'03.928"N	80°54'20.876"W	3361.83	351.517	0.35	-0.06	-0.35	
10084.00	90.310	338.270	6586.90	3391.28	3413.08	-531.66	1666979.15	14320211.20	39°26'04.799"N	80°54'21.330"W	3454.24	351.146	0.75	-0.06	0.75	
10178.00	90.580	338.720	6586.17	3485.23	3500.53	-566.12	1666944.71	14320298.61	39°26'05.663"N	80°54'21.768"W	3546.01	350.813	0.56	0.29	0.48	
10274.00	90.430	339.980	6585.33	3581.22	3590.36	-599.97	1666910.87	14320388.40	39°26'06.551"N	80°54'22.198"W	3640.14	350.513	1.32	-0.16	1.31	
10368.00	90.400	340.590	6584.65	3675.21	3678.85	-631.68	1666879.17	14320476.86	39°26'07.426"N	80°54'22.601"W	3732.68	350.257	0.65	-0.03	0.65	
10463.00	90.460	339.100	6583.93	3770.21	3768.02	-664.41	1666846.46	14320566.00	39°26'08.308"N	80°54'23.017"W	3826.15	350.000	1.57	0.06	-1.57	
10558.00	90.460	339.930	6583.17	3865.20	3857.01	-697.66	1666813.22	14320654.95	39°26'09.188"N	80°54'23.439"W	3919.60	349.747	0.87	0.00	0.87	
10653.00	90.340	341.030	6582.51	3960.19	3946.55	-729.40	1666781.49	14320744.45	39°26'10.073"N	80°54'23.843"W	4013.39	349.529	1.16	-0.13	1.16	
10748.00	90.490	340.340	6581.82	4055.19	4036.20	-760.82	1666750.09	14320834.07	39°26'10.960"N	80°54'24.242"W	4107.28	349.325	0.74	0.16	-0.73	
10841.00	90.340	340.620	6581.15	4148.18	4123.85	-791.89	1666719.02	14320921.68	39°26'11.826"N	80°54'24.637"W	4199.19	349.130	0.34	-0.16	0.30	
10936.00	90.460	341.220	6580.48	4243.17	4213.63	-822.95	1666687.98	14321011.43	39°26'12.714"N	80°54'25.032"W	4293.24	348.949	0.64	0.13	0.63	
11032.00	90.490	342.280	6579.69	4339.13	4304.80	-853.01	1666657.93	14321102.56	39°26'13.615"N	80°54'25.413"W	4388.49	348.792	1.10	0.03	1.10	
11127.00	90.580	343.430	6578.80	4434.02	4395.57	-881.01	1666629.94	14321193.29	39°26'14.513"N	80°54'25.769"W	4482.99	348.666	1.21	0.09	1.21	
11222.00	90.400	344.100	6577.99	4528.83	4486.78	-907.57	1666603.39	14321284.46	39°26'15.414"N	80°54'26.106"W	4577.65	348.565	0.73	-0.19	0.71	
11317.00	90.580	345.000	6577.18	4623.55	4578.34	-932.88	1666578.10	14321375.99	39°26'16.320"N	80°54'26.428"W	4672.41	348.483	0.97	0.19	0.95	
11411.00	90.460	344.490	6576.32	4717.25	4669.02	-957.61	1666553.38	14321466.64	39°26'17.216"N	80°54'26.742"W	4766.21	348.409	0.56	-0.13	-0.54	
11506.00	90.920	345.450	6575.18	4811.91	4760.76	-982.24	1666528.75	14321558.34	39°26'18.123"N	80°54'27.055"W	4861.04	348.342	1.12	0.48	1.01	
11601.00	90.340	345.390	6574.13	4906.51	4852.70	-1006.16	1666504.85	14321650.24	39°26'19.032"N	80°54'27.358"W	4955.91	348.286	0.61	-0.61	-0.06	
11696.00	90.800	343.640	6573.19	5001.23	4944.24	-1031.52	1666479.50	14321741.75	39°26'19.937"N	80°54'27.680"W	5050.70	348.215	1.90	0.48	-1.84	

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Actual Wellpath Report

San Juan Unit 1H AWP Proj: 15278'
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REFERENCE WELLPATH IDENTIFICATION		Slot #07
Operator	ANTERO RESOURCES CORPORATION	Slot
Area	Tyler County, WV	Well
Field	Tyler	Wellbore
Facility	Vera Pad	San Juan Unit 1H AWB

WELLPATH DATA (188 stations)																
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 [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
11791.00	90.830	339.290	6571.84	5096.18	5034.28	-1061.71	1666449.32	14321831.75	39°26'20.827"N	80°54'28.064"W	5145.02	348.091	4.58	0.03	-4.58	
11866.00	90.950	336.960	6570.36	5191.10	5122.43	-1097.09	1666413.95	14321919.86	39°26'21.999"N	80°54'28.514"W	5238.60	347.911	2.46	0.13	-2.45	
11960.00	90.890	334.920	6568.85	5284.82	5208.25	-1135.41	1666375.65	14322005.64	39°26'22.547"N	80°54'29.001"W	5330.57	347.702	2.17	-0.06	-2.17	
12076.00	90.890	333.390	6567.36	5380.28	5294.63	-1177.25	1666333.82	14322091.99	39°26'23.401"N	80°54'29.533"W	5423.93	347.464	1.59	0.00	-1.59	
12171.00	91.080	333.980	6565.73	5474.65	5379.77	-1219.36	1666291.73	14322177.10	39°26'24.243"N	80°54'30.069"W	5516.23	347.229	0.65	0.20	0.82	
12265.00	90.830	338.400	6564.16	5568.38	5465.74	-1257.29	1666253.81	14322263.03	39°26'25.093"N	80°54'30.551"W	5608.48	347.045	4.71	-0.27	4.70	
12360.00	90.950	340.760	6562.68	5663.36	5554.75	-1290.43	1666220.68	14322352.01	39°26'25.973"N	80°54'30.972"W	5702.67	346.922	2.49	0.13	2.48	
12455.00	90.650	340.630	6561.36	5758.33	5644.40	-1321.84	1666189.29	14322441.62	39°26'26.860"N	80°54'31.372"W	5797.11	346.820	0.34	-0.32	-0.14	
12550.00	90.650	341.650	6560.28	5853.33	5734.29	-1352.54	1666158.60	14322531.48	39°26'27.749"N	80°54'31.762"W	5891.65	346.728	1.07	0.00	1.07	
12644.00	90.520	340.500	6559.32	5947.31	5823.21	-1383.03	1666128.12	14322620.36	39°26'28.628"N	80°54'32.149"W	5985.19	346.640	1.23	-0.14	-1.22	
12739.00	90.620	338.780	6558.37	6042.30	5912.26	-1416.08	1666095.09	14322709.38	39°26'29.508"N	80°54'32.569"W	6079.48	346.531	1.81	0.11	-1.81	
12834.00	90.650	338.760	6557.32	6137.20	6000.19	-1452.02	1666059.17	14322797.27	39°26'30.378"N	80°54'33.026"W	6173.38	346.396	2.13	0.03	-2.13	
12929.00	90.550	339.770	6556.33	6232.13	6088.42	-1487.19	1666024.01	14322885.47	39°26'31.250"N	80°54'33.473"W	6267.43	346.273	3.17	-0.11	3.17	
13024.00	90.610	342.220	6555.36	6327.11	6178.23	-1518.12	1665993.09	14322975.24	39°26'32.138"N	80°54'33.867"W	6362.02	346.195	2.58	0.06	2.58	
13119.00	90.550	340.410	6554.40	6422.08	6268.22	-1548.55	1665962.67	14323065.19	39°26'33.028"N	80°54'34.253"W	6456.67	346.123	1.91	-0.06	-1.91	
13214.00	90.280	339.410	6553.72	6517.08	6357.43	-1581.19	1665930.05	14323154.37	39°26'33.910"N	80°54'34.668"W	6551.12	346.033	1.09	-0.28	-1.05	
13309.00	89.880	338.880	6553.58	6612.07	6446.50	-1614.23	1665897.02	14323243.40	39°26'34.790"N	80°54'35.088"W	6645.53	345.942	0.85	-0.42	0.49	
13404.00	89.850	338.650	6553.81	6707.06	6535.35	-1647.86	1665863.40	14323332.21	39°26'35.669"N	80°54'35.516"W	6739.90	345.848	1.30	-0.03	-1.29	
13500.00	89.850	340.130	6554.06	6803.05	6625.20	-1681.65	1665829.62	14323422.03	39°26'36.557"N	80°54'35.945"W	6835.29	345.758	1.54	0.00	1.54	
13595.00	89.820	338.800	6554.33	6898.04	6714.16	-1714.98	1665796.31	14323511.95	39°26'37.437"N	80°54'36.369"W	6929.73	345.671	1.40	-0.03	-1.40	
13690.00	89.780	339.270	6554.66	6993.02	6802.87	-1748.97	1665762.33	14323599.63	39°26'38.314"N	80°54'36.801"W	7024.10	345.582	0.50	-0.04	0.49	
13784.00	89.850	340.160	6554.97	7087.01	6891.04	-1781.56	1665729.76	14323687.76	39°26'39.185"N	80°54'37.215"W	7117.61	345.505	0.95	0.07	0.95	
13879.00	90.220	339.950	6554.91	7182.01	6980.34	-1813.96	1665697.36	14323777.03	39°26'40.068"N	80°54'37.627"W	7212.19	345.433	0.45	0.39	-0.22	
13974.00	90.310	341.600	6554.47	7277.00	7070.04	-1845.24	1665666.10	14323866.69	39°26'40.955"N	80°54'38.025"W	7306.87	345.372	1.74	0.09	1.74	
14068.00	90.310	342.490	6553.96	7370.95	7159.46	-1874.22	1665637.13	14323956.07	39°26'41.839"N	80°54'38.393"W	7400.71	345.330	0.95	0.00	0.95	
14163.00	90.400	344.790	6553.37	7465.77	7250.60	-1900.98	1665610.39	14324047.18	39°26'42.740"N	80°54'38.733"W	7495.66	345.309	2.42	0.09	2.42	
14258.00	90.400	342.810	6552.71	7560.57	7341.83	-1927.48	1665583.89	14324138.37	39°26'43.642"N	80°54'39.070"W	7590.62	345.290	2.08	0.00	-2.08	
14353.00	90.400	339.610	6552.04	7655.55	7431.75	-1958.07	1665553.31	14324228.25	39°26'44.531"N	80°54'39.458"W	7685.37	345.239	3.37	0.00	-3.37	
14449.00	90.400	340.790	6551.37	7751.54	7522.07	-1990.59	1665520.81	14324318.54	39°26'45.424"N	80°54'39.872"W	7781.00	345.177	1.23	0.00	1.23	
14544.00	90.430	340.970	6550.69	7846.53	7611.83	-2021.71	1665489.70	14324408.26	39°26'46.312"N	80°54'40.267"W	7875.73	345.126	0.19	0.03	0.19	

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Actual Wellpath Report

San Juan Unit 1H AWP Proj: 15278'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Tyler County, WV	Well	San Juan Unit 1H
Field	Tyler	Wellbore	San Juan Unit 1H AWB
Facility	Vera Pad		

WELLPATH DATA (188 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
14639.00	90.340	339.770	6550.05	7941.53	7701.30	-2053.62	1665457.80	14324497.70	39°26'47.196"N	80°54'40.673"W	7970.41	345.069	1.27	-0.09	-1.26	
14734.00	90.370	338.020	6549.46	8036.50	7789.92	-2087.83	1665423.61	14324586.29	39°26'48.073"N	80°54'41.108"W	8064.86	344.996	1.84	0.03	-1.84	
14829.00	90.220	337.150	6548.97	8131.40	7877.74	-2124.05	1665387.40	14324674.07	39°26'48.941"N	80°54'41.569"W	8159.07	344.910	0.93	-0.16	-0.92	
14924.00	90.280	336.470	6548.56	8226.23	7965.07	-2161.46	1665350.01	14324761.36	39°26'49.804"N	80°54'42.044"W	8253.13	344.817	0.72	0.06	-0.72	
15019.00	90.460	336.690	6547.94	8321.04	8052.24	-2199.22	1665312.27	14324848.50	39°26'50.666"N	80°54'42.525"W	8347.16	344.724	0.30	0.19	0.23	
15113.00	90.220	337.840	6547.38	8414.91	8138.93	-2235.54	1665275.95	14324935.15	39°26'51.523"N	80°54'42.987"W	8440.37	344.641	1.25	-0.26	1.22	
15208.00	90.430	338.720	6546.85	8509.86	8227.19	-2270.70	1665240.81	14325023.37	39°26'52.396"N	80°54'43.434"W	8534.79	344.571	0.95	0.22	0.93	
15278.00	90.430	338.720	6546.32	8579.83	8292.41	-2296.10	1665215.42	14325088.57	39°26'53.041"N	80°54'43.757"W	8604.43	344.523	0.00	0.00	0.00	Projected MD at TD: 15278'

HOLE & CASING SECTIONS - Ref Wellbore: San Juan Unit 1H AWB Ref Wellpath: San Juan Unit 1H AWP Proj: 15278'									
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	-0.08	-0.12
17.5in Open Hole	104.50	747.50	643.00	104.50	747.49	-0.08	-0.12	-2.92	-1.22
13.375in Casing Surface	24.50	747.50	723.00	24.50	747.49	0.00	0.00	-2.92	-1.22
12.25in Open Hole	747.50	2594.50	1847.00	747.49	2594.27	-2.92	-1.22	-5.01	6.35
9.625in Casing Intermediate	24.50	2594.50	2570.00	24.50	2594.27	0.00	0.00	-5.01	6.35
8.75in Open Hole	2594.50	6540.50	3946.00	2594.27	6417.08	-5.01	6.35	135.03	655.19
8.5in Open Hole	6540.50	15208.00	8667.50	6417.08	6546.85	135.03	655.19	8227.19	-2270.70
5.5in Casing Production	24.50	15208.00	15183.50	24.50	6546.85	0.00	0.00	8227.19	-2270.70

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Actual Wellpath Report

San Juan Unit 1H AWP Proj: 15278'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Tyler County, WV	Well	San Juan Unit 1H
Field	Tyler	Wellbore	San Juan Unit 1H AWB
Facility	Vera Pad		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
San Juan Unit 1H POE - Rev-2	6560.00	346.03	588.43	1668098.79	14317145.38	39°25'34.474"N	80°54'07.097"W	point
San Juan Unit 1H BHL - Rev-1	6586.00	8301.70	-2277.41	1665234.10	14325097.86	39°26'53.133"N	80°54'43.518"W	point
San Juan Unit 1H LP - Rev-1	6586.00	506.57	530.60	1668040.98	14317305.85	39°25'36.061"N	80°54'07.832"W	point

WELLPATH COMPOSITION - Ref Wellbore: San Juan Unit 1H AWB Ref Wellpath: San Juan Unit 1H AWP Proj: 15278'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	
24.50	739.50	Gyrodata standard - Drop gyro or Multi-shot	01 Gyrodata MS Gyro <17-1/2">(100'-730')	San Juan Unit 1H AWB	
739.50	1092.50	Gyrodata standard - Drop gyro or Multi-shot	02 Gyrodata MS Gyro <12-1/4">(730')(795'-1083')	San Juan Unit 1H AWB	
1092.50	2511.50	ISCWSA MWD, Rev. 4 (Standard)	03 WFT EM <12-1/4">(1083')(1166'-2502')	San Juan Unit 1H AWB	
2511.50	6479.50	ISCWSA MWD, Rev. 4 (Standard)	04 WFT EM <8-3/4">(2502')(2625'-6470')	San Juan Unit 1H AWB	
6479.50	15208.00	BHI AutoTrak Curve (Short)	05 BHI AT Curve <8-1/2">(6479.5')(6520'-15208')	San Juan Unit 1H AWB	
15208.00	15278.00	Blind Drilling (std)	Projection to bit	San Juan Unit 1H AWB	

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Actual Wellpath Report

San Juan Unit 1H AWP Proj: 15278'

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REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #07
Area	Tyler County, WV	Well	San Juan Unit 1H
Field	Tyler	Wellbore	San Juan Unit 1H AWB
Facility	Vera Pad		

COMMENTS
<p>Wellpath general comments API: 47-095-02380-0000 BHI Job #: 8752021 Rig: Frontier 22 Duration: 09/05/2017-09/06/2017 Gyrodata MS Gyro <17-1/2"> (100'-730') Gyrodata MS Gyro <12-1/4"> (730')(795'-1083') WFT EM <12-1/4"> (1083')(1166'-2502') WFT EM <8-3/4"> (2502')(2625'-6470') BHI AT Curve <8-1/2"> (6479.5')(6520'-15208') Middlesex: 6529' MD Burkett: 6669' MD Tully: 6718' MD Marcellus POE: 6795' MD Projected MD at TD: 15278'</p>

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/28/2018
Job End Date:	4/18/2018
State:	West Virginia
County:	Tyler
API Number:	47-095-02380-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	San Juan Unit 1H
Latitude:	39.42529400
Longitude:	-80.90405600
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,548
Total Base Water Volume (gal):	15,239,703
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	88.10199	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.16903	

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FR-76	Halliburton	Friction Reducer					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant					
				Listed Below			
SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant					
				Listed Below			
HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
SP BREAKER	Halliburton	Breaker					
				Listed Below			
SCALECHEK LP-70	Halliburton	Scale Inhibitor					
				Listed Below			

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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	11.69261	
			Hydrochloric acid	7647-01-0	15.00000	0.01833	
			Inorganic salt	Proprietary	30.00000	0.01563	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.01563	
			Acrylamide acrylate copolymer	Proprietary	30.00000	0.01563	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Ethylene glycol	107-21-1	60.00000	0.00843	
			Guar gum	9000-30-0	100.00000	0.00797	
			Glutaraldehyde	111-30-8	30.00000	0.00258	
			Telmer	Proprietary	10.00000	0.00141	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00043	
			Sodium persulfate	7775-27-1	100.00000	0.00025	
			Methanol	67-56-1	60.00000	0.00014	
			Sodium polyacrylate	9003-04-7	1.00000	0.00014	
			Ethanol	64-17-5	1.00000	0.00009	
			Modified thiourea polymer	Proprietary	30.00000	0.00007	
			Ethoxylated alcohols	Proprietary	30.00000	0.00007	
			Fatty acids, tall oil	Proprietary	30.00000	0.00007	
			Olefins	Proprietary	5.00000	0.00003	
			Propargyl alcohol	107-19-7	10.00000	0.00002	
			Phosphoric acid	7664-38-2	0.10000	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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LATITUDE 39°27'30"

8,208'

LATITUDE 39°27'30"

LONGITUDE 80°52'30"

12034

LONGITUDE 80°52'30"

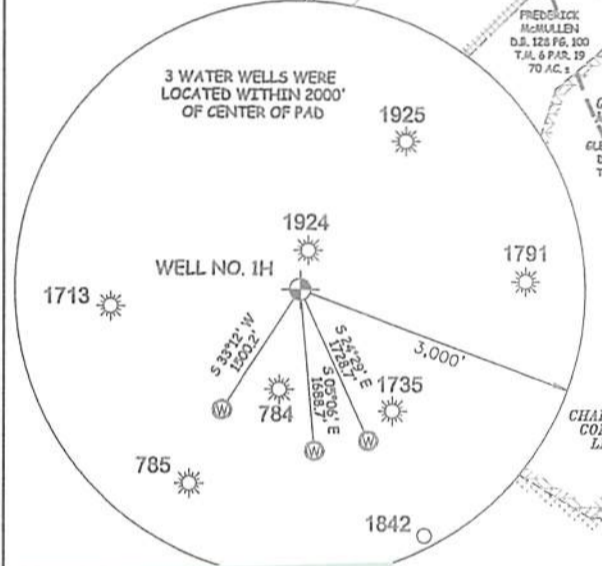
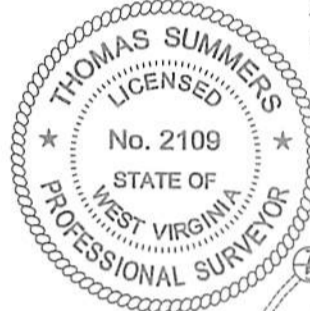
Antero Resources Corporation
Well No. San Juan Unit 1H

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 BY 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.

AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 340,110ft E: 1,603,385ft
LAT: 39°25'31.06" LON: 80°54'14.60"
BOTTOM HOLE INFORMATION:
N: 348,443ft E: 1,601,227ft
LAT: 39°26'53.07" LON: 80°54'43.77"
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 1H TOP HOLE INFORMATION:
N: 4,363,987m E: 508,273m
BOTTOM HOLE INFORMATION:
N: 4,366,514m E: 507,573m

WV NORTH ZONE
GRID NORTH



San Juan Units

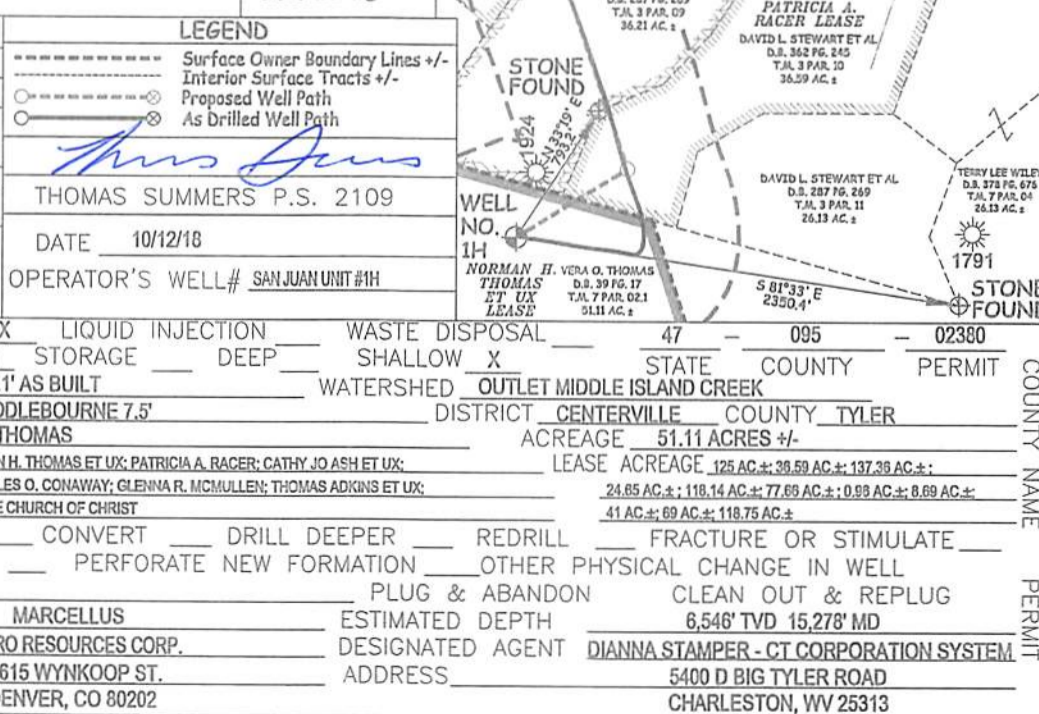
THIS PLAT IS CORRECT AND SHOWS ALL THE LIES ISSUED AND ONMENTAL PROTECTION.

VIRGINIA, DIVISION
NTAL PROTECTION,
OIL AND GAS
D SURVEYING PLLC
VE. 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 # 16-042WA
DRAWING # SAN JUAN1HAD
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
WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 095 02380
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X 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 JO ASH ET UX; LEASE ACREAGE 125 AC +/- 36.59 AC +/- 137.36 AC +/-
KATHLEEN L. LOUGH; LARRY D. MCMULLEN; CHARLES O. CONAWAY; GLENNA R. MCMULLEN; THOMAS ADKINS ET UX; 24.85 AC +/-; 118.14 AC +/-; 77.85 AC +/-; 0.95 AC +/-; 8.69 AC +/-
RALPH HALL; PATSY J. FLETCHER; MIDDLEBOURNE CHURCH OF CHRIST 41 AC +/-; 69 AC +/-; 118.75 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 6,546' TVD 15,278' 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



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

THOMAS SUMMERS P.S. 2109
DATE 10/12/16
OPERATOR'S WELL# SAN JUAN UNIT #1H

FORM WW-6

LATITUDE 39°27'30"

8,208'

10,493' TO BOTTOM HOLE

LATITUDE 39°27'30"

LONGITUDE 80°52'30"

12,034'

LONGITUDE 80°52'30"

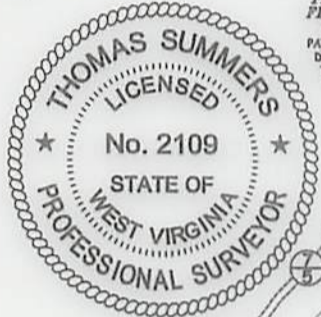
Antero Resources Corporation Well No. San Juan Unit 1H

- NOTE**
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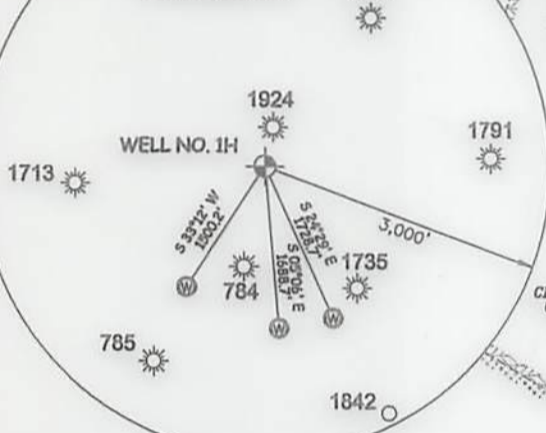
WV NORTH ZONE GRID NORTH

AS DRILLED DATA:
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(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
 N: 4,363,987m E: 508,273m
BOTTOM HOLE INFORMATION:
 N: 4,366,514m E: 507,573m



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



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



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

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

PAD LAYOUT

- NOT TO SCALE
- 10' - 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' - EMERGER UNIT 1H
 - 10' - EMERGER UNIT 2H
 - 10' - EMERGER UNIT 3H
 - 10' - EMERGER UNIT 4H

JOB # 16-042WA
 DRAWING # SAN JUAN 1HAD
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND

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

THOMAS SUMMERS P.S. 2109
 DATE 10/12/18
 OPERATOR'S WELL# SAN JUAN UNIT #1H

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

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 095 02380
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT
 LOCATION: ELEVATION 1,148.1' AS BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK
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 RALPH HALL; PATSY J. FLETCHER; MIDDLEBOURNE CHURCH OF CHRIST 41 AC +/-; 69 AC +/-; 118.75 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 6,546' TVD 15,278' 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

