

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

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Office Of Oil and Gas

MAY 23 2025

WV Department of
Environmental Protection

API 47 - 095 - 02388 County Tyler District Meade
Quad Pennsboro 7.5' Pad Name Ritchie Petroleum Pad Field/Pool Name -----
Farm name David M. Hartley Well Number Hopper 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 4356653m Easting 502135m
Landing Point of Curve Northing 4356466.28m Easting 501737.03m
Bottom Hole Northing 4354399m Easting 502607m

Elevation (ft) 1176' 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 12/20/2016 Date drilling commenced 3/6/2017 Date drilling ceased 9/27/2017
Date completion activities began 6/8/2018 Date completion activities ceased 7/25/2018
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 162', 201', 577' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1293' Void(s) encountered (Y/N) depths No
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:

ORIGINAL REVIEWED BY
STEPHEN MCCOY
UPDATE BY
05/23/2025
5/23/25

WR-35
Rev. 8/23/13

Page 2 of 4

API 47-095 - 02388

Farm name David M. Hartley

Well number Hopper Unit 1H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24"	20"	112'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	373.4'	New	54.5#, J-55	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2621.6'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	14406'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6671.9'		4.7#, L-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	202 sx	15.6	1.18	238	0'	8 Hrs.
Surface	Class A	332 sx	15.6	1.20	398	0'	8 Hrs.
Coal							
Intermediate 1	Class A	934 sx	15.6	1.18	1102	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	760 sx (Lead) 1120 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.44 (Lead), 1.87 (Tail)	1094 (Lead) 2094 (Tail)	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 14406' MD, 6468' TVD (BHL), 6468' (Deepest Point Drilled)

Loggers TD (ft) 14406' MD

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure N/A

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Kick off depth (ft) 5910'

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Check all wireline logs run

☐ caliper

☐ density

☐ deviated/directional

☐ induction

☐ neutron

☐ resistivity

☐ gamma ray

☐ temperature

☐ sonic

Well cored ☐ Yes ☒ No

Conventional Sidewall

Were cuttings collected ☐ Yes ☒ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING

Conductor - 0

Surface - 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface

Intermediate - 1 above float joint, 1 above float collar, 1 every 4th joint to surface

Production - 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ☒ No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ☒ No DETAILS _____

WERE TRACERS USED ☐ Yes ☒ No

TYPE OF TRACER(S) USED N/A

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Well number Hopper Unit 1H

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)

[illegible][illegible][illegible]

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API 47-095-02388 Farm name David M. Hartley Well number Hopper Unit 1H

PRODUCING FORMATION(S) Marcellus DEPTHS 6384' (TOP) TVD 6765' (TOP) MD

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Please insert additional pages as applicable.

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

SHUT-IN PRESSURE Surface 1879 psi Bottom Hole --- psi DURATION OF TEST -- hrs

OPEN FLOW Gas 6730.67 mcfpd Oil 53.22 bpd NGL --- bpd Water 427.19 bpd GAS MEASURED BY ☐ Estimated ☒ Orifice ☐ Pilot

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

***PLEASE SEE ATTACHED EXHIBIT 3**

Please insert additional pages as applicable.

Drilling Contractor Frontier Drilling, LLC
Address 562 Heritage Dr City Pennsboro State WV Zip 26415

Logging Company Allied Horizontal Wireline Services
Address 381 Colonial Manor Rd City Irwin State PA Zip 15642

Cementing Company Halliburton Energy Services
Address 3000 W. Sam Houston Pkwy City Houston State TX Zip 76114

Stimulating Company Halliburton Energy Services
Address 3000 W. Sam Houston Pkwy City Houston State TX Zip 76114

Please insert additional pages as applicable.

Completed by Carly Wren Telephone 303-357-7373
Signature [Signature] Title Permitting Agent Date 5/21/2025

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

05/23/2025

API 47-095-02388 Farm Name David M. Hartley Well Number Hopper Unit 1H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	6/8/2018	14207	N/A	60	Marcellus
2	6/9/2018	14007	14176	60	Marcellus
3	6/9/2018	13808	13976	60	Marcellus
4	6/10/2018	13608	13776	60	Marcellus
5	6/10/2018	13408	13577	60	Marcellus
6	6/10/2018	13208	13377	60	Marcellus
7	6/11/2018	13009	13177	60	Marcellus
8	6/11/2018	12809	12977	60	Marcellus
9	6/11/2018	12609	12778	60	Marcellus
10	6/11/2018	12409	12578	60	Marcellus
11	6/11/2018	12210	12378	60	Marcellus
12	6/12/2018	12010	12178	60	Marcellus
13	6/12/2018	11810	11979	60	Marcellus
14	6/12/2018	11610	11779	60	Marcellus
15	6/13/2018	11411	11579	60	Marcellus
16	6/13/2018	11211	11379	60	Marcellus
17	6/13/2018	11011	11180	60	Marcellus
18	6/13/2018	10812	10980	60	Marcellus
19	6/14/2018	10612	10780	60	Marcellus
20	6/14/2018	10412	10580	60	Marcellus
21	6/14/2018	10212	10381	60	Marcellus
22	6/15/2018	10013	10181	60	Marcellus
23	6/15/2018	9813	9981	60	Marcellus
24	6/15/2018	9613	9782	60	Marcellus
25	6/15/2018	9413	9582	60	Marcellus
26	6/16/2018	9214	9382	60	Marcellus
27	6/16/2018	9014	9182	60	Marcellus
28	6/16/2018	8814	8983	60	Marcellus
29	6/16/2018	8614	8783	60	Marcellus
30	6/17/2018	8415	8583	60	Marcellus
31	6/17/2018	8215	8383	60	Marcellus
32	6/17/2018	8015	8184	60	Marcellus
33	6/17/2018	7816	7984	60	Marcellus
34	6/17/2018	7616	7784	60	Marcellus
35	6/18/2018	7416	7584	60	Marcellus
36	6/18/2018	7216	7385	60	Marcellus
37	6/18/2018	7017	7185	60	Marcellus
38	6/18/2018	6817	6985	60	Marcellus

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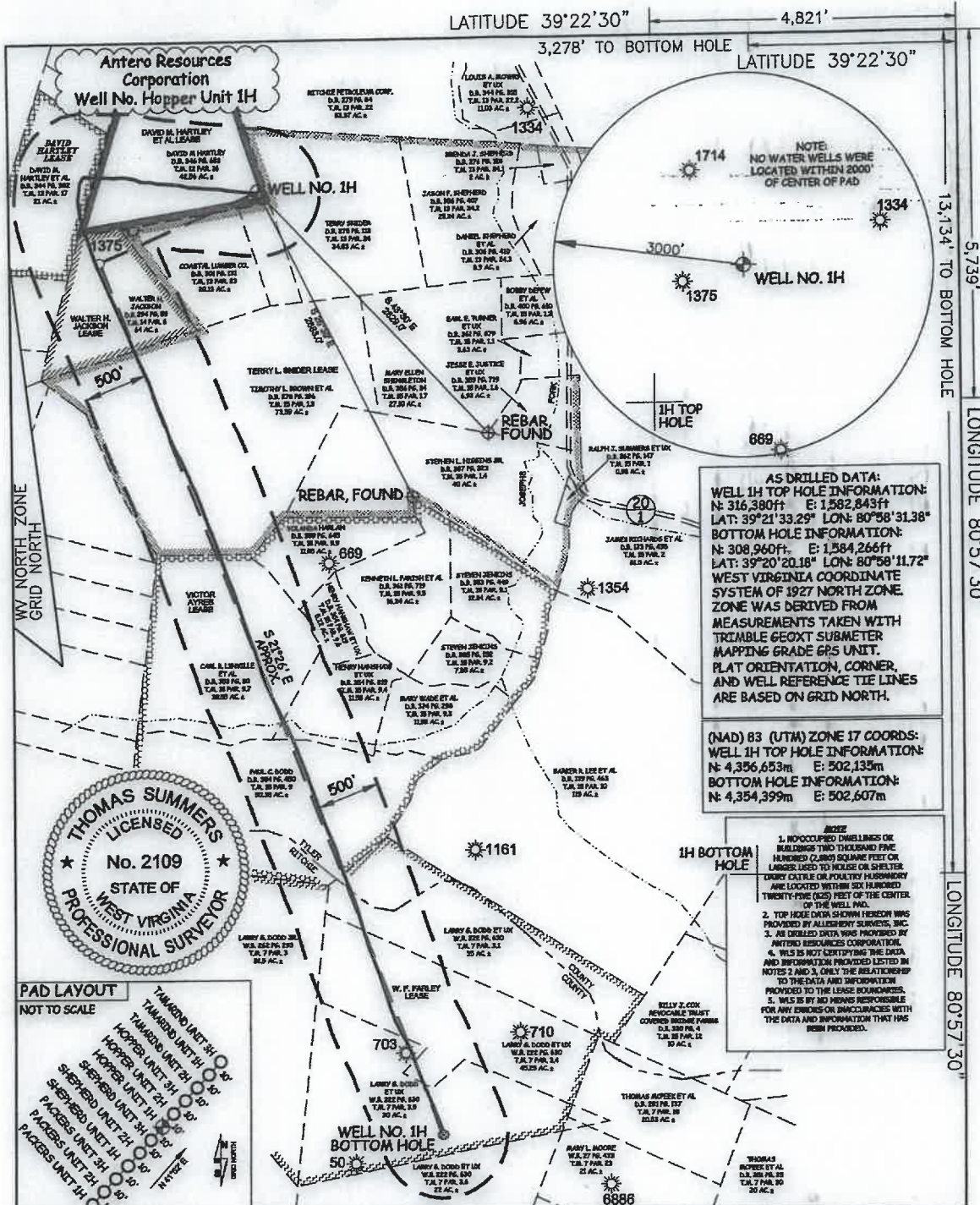
EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	6/8/2018	43.9	8532	5865	5539	3082	3962	N/A
2	6/9/2018	73.8	7253	5926	5615	137318	6766	N/A
3	6/9/2018	74.2	7004	5717	3705	140880	7927	N/A
4	6/10/2018	73.5	6987	5660	4328	156950	6924	N/A
5	6/10/2018	77.8	6880	5414	5253	119900	6903	N/A
6	6/10/2018	76.2	6941	5325	4778	139480	7025	N/A
7	6/11/2018	77.3	6952	5456	4791	141480	6971	N/A
8	6/11/2018	73.1	6711	5187	4511	142250	10394	N/A
9	6/11/2018	74.7	6944	5660	4289	141310	7502	N/A
10	6/11/2018	75.6	6674	5635	4612	139820	7196	N/A
11	6/11/2018	70.8	6682	5382	4107	140270	7014	N/A
12	6/12/2018	68.6	6580	5312	3907	139540	6870	N/A
13	6/12/2018	74.6	6776	5324	3738	140600	9046	N/A
14	6/12/2018	78.3	6404	4851	3532	141440	6854	N/A
15	6/13/2018	77.7	6609	5590	4225	137840	6714	N/A
16	6/13/2018	78.1	6504	4918	4237	137650	7304	N/A
17	6/13/2018	77.4	6812	5508	3328	136810	7260	N/A
18	6/13/2018	77.2	6751	5014	3404	141010	8764	N/A
19	6/14/2018	74.9	6502	5104	3905	139310	7326	N/A
20	6/14/2018	71.2	6906	4854	4890	138160	8020	N/A
21	6/14/2018	77.1	6808	5021	4127	138640	7614	N/A
22	6/15/2018	78.2	6537	5382	3918	158680	6963	N/A
23	6/15/2018	77.4	6694	4934	4953	147530	6995	N/A
24	6/15/2018	72.8	6869	5546	3371	140810	8503	N/A
25	6/15/2018	77.9	6750	6315	4098	137390	6683	N/A
26	6/16/2018	77.8	6249	5442	3528	138790	6787	N/A
27	6/16/2018	76.7	6343	6931	3565	137160	6642	N/A
28	6/16/2018	74.9	6913	6744	3831	139480	8053	N/A
29	6/16/2018	77.1	6828	6211	5344	140230	6986	N/A
30	6/17/2018	78.5	7107	5205	4804	137970	8000	N/A
31	6/17/2018	75.8	6481	5292	5603	140130	6625	N/A
32	6/17/2018	76.8	6369	5379	4047	140630	6561	N/A
33	6/17/2018	78.9	6356	5695	4780	140150	6732	N/A
34	6/17/2018	78.6	5972	5414	4533	139250	6603	N/A
35	6/18/2018	79.7	5997	5456	3538	141870	6683	N/A
36	6/18/2018	77.6	6244	5133	4770	139630	6568	N/A
37	6/18/2018	79.1	5941	5250	4077	140570	6629	N/A
38	6/18/2018	78.4	5870	5107	3805	139650	6492	N/A
	AVERAGE	75.3	6,677	5,478	4,300	5,193,660	272,861	TOTAL

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Shale w/intbd Sandstone and Limestone	-32	228	-32	228
Sandy shale and coal	228	528	228	528
Sandy shale	528	708	528	708
Calcareous shale	708	848	708	848
Limy shale with coal	848	1048	848	1048
Sandy shale	1,048	1208	1,048	1208
Sandy shale with coal	1,208	1348	1,208	1348
sandstone	1,348	1488	1,348	1488
Sandy shale	1,488	1568	1,488	1568
Shaly sandstone	1,568	1648	1,568	1648
Silty shale	1,648	1708	1,648	1708
Sandy shale	1,708	1808	1,708	1808
Sandy shale/coal	1,808	1999	1,808	2039
Big Lime	2,031	2129	2,071	2172
Big Injun	2,129	2619	2,172	2681
Gantz Sand	2,619	2938	2,681	3013
Fifty Foot Sandstone	2,938	3055	3,013	3136
Gordon	3,055	3258	3,136	3507
Fifth Sandstone	3,258	3441	3,507	3577
Bayard	3,441	3704	3,577	3810
Warren	3,704	4018	3,810	4168
Speechley	4,018	4498	4,168	4878
Balltown	4,342	4875	4,486	5224
Bradford	4,498	4875	4,878	5224
Benson	4,875	5299	5,224	5468
Alexander	5,299	5840	5,468	6031
Rhinstreet	5,808	6158	5,999	6393
Sycamore	6,158	6269	6,393	6543
Middlesex	6,269	6361	6,543	6704
Burkett	6,361	6378	6,704	6749
Tully	6,378	6384	6,749	6765
Marcellus	6,384	NA	6,765	NA

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



JOB # 15-042WA
DRAWING # HOPPER1H
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

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 AVENUE PENNSBORO
WEST VIRGINIA 26415

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

THOMAS SUMMERS P.S. 2109

DATE 11/07/18
OPERATOR'S WELL# HOPPER 1H

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
LOCATION: ELEVATION 1,176' AS BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK
QUADRANGLE PENNSBORO 7.5 DISTRICT MEADE COUNTY TYLER

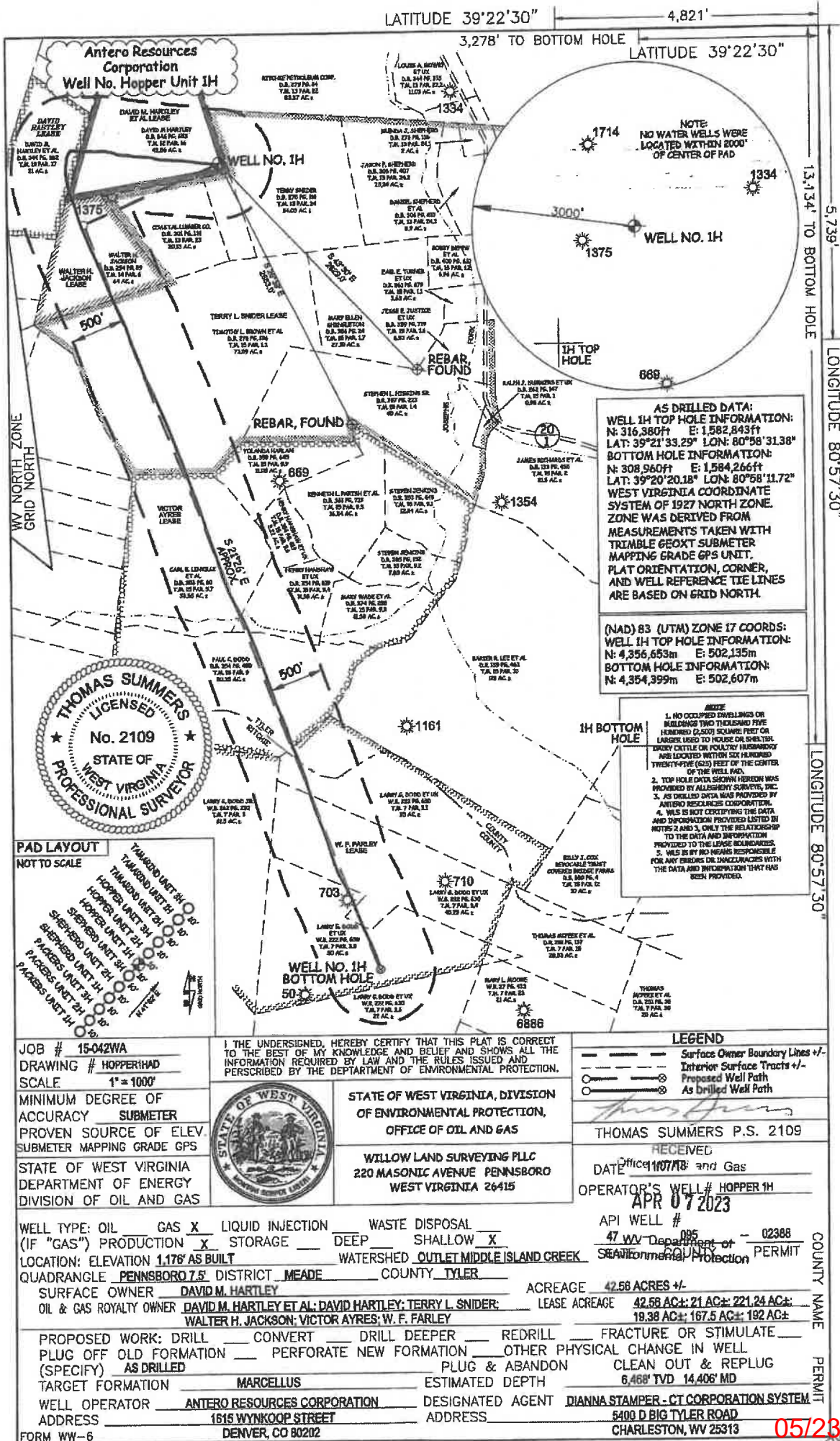
SURFACE OWNER DAVID M. HARTLEY ACREAGE 42.58 ACRES +/-
OIL & GAS ROYALTY OWNER DAVID M. HARTLEY ET AL; DAVID HARTLEY; TERRY L. SNIDER; LEASE ACREAGE 42.58 AC +/- 21.24 AC +/-
WALTER H. JACKSON; VICTOR AYRES; W. F. FARLEY 19.38 AC +/- 167.5 AC +/- 192 AC +/-

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 6,488' TYD 14,406' MD

WELL OPERATOR ANTERO RESOURCES CORPORATION DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

FORM WW-6

05/23/2025



Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	6/8/2018
Job End Date:	6/18/2018
State:	West Virginia
County:	Tyler
API Number:	47-095-02388-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Hopper 1H
Latitude:	39.35924700
Longitude:	-80.97538300
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,468
Total Base Water Volume (gal):	11,808,306
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	87.89793	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.14290	

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Handwritten signature/initials

MC S-2510T	Halliburton	Scale Inhibitor				Listed Below				
SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant								
SAND-COMMON WHITE - 100 MESH; 3307 LB BAG	Halliburton	Proppant								
FIGHTER EC-3	Halliburton	Friction Reducer								
Legend LD-2560	Multi-Chem	Completion/Stimulation								
MC B-8614	Halliburton	Biocide								
SP BREAKER	Halliburton	Breaker								
WG-36 GELLING AGENT	Halliburton	Gelling Agent								

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HAZ-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor							
					Listed Below				
HYDROCHLORIC ACID	Halliburton	Solvent							
					Listed Below				
Items above are Trade Names with the exception of Base Water. Items below are the individual ingredients.									
				Crystalline silica, quartz	14808-60-7	100.00000	11.91333		
				Acrylamide polymer	Proprietary	30.00000	0.02066	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226	
				Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02066		
				Hydrochloric acid	7647-01-0	15.00000	0.01288		
				Ethylene Glycol	107-21-1	60.00000	0.00846		
				Sodium persulfate	7775-27-1	100.00000	0.00584		
				Guar gum	9000-30-0	100.00000	0.00365		
				Polyoxyalkylene	Proprietary	5.00000	0.00344		
				Sorbitan, mono-9-octadecenoate, (Z)	1338-43-8	5.00000	0.00344		
				Glutaraldehyde	111-30-8	30.00000	0.00262		
				Neutralized Polyacrylic Emulsion	Proprietary	10.00000	0.00141		
				Alcohols, C10-16, ethoxylated	68002-97-1	30.00000	0.00046		
				Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00044		
				Methanol	67-56-1	60.00000	0.00011		
				Ethanol	64-17-5	1.00000	0.00009		
				Polyoxylated fatty amine salt	61791-26-2	5.00000	0.00008		

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			Ethoxylated alcohols	Proprietary	30.00000	0.00005	
			Fatty acids, tall oil	Proprietary	30.00000	0.00005	
			Modified thiourea polymer	Proprietary	30.00000	0.00005	
			Olefins	Proprietary	5.00000	0.00002	
			Propargyl alcohol	107-19-7	10.00000	0.00002	
			Phosphoric acid	7664-38-2	0.10000	0.00001	
			Sodium sulfate	7757-82-6	0.10000	0.00001	

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

*** If you are calculating a percentage of total ingredients do not add the water volume below the green line to the water volume above the green line

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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APR 07 2023

U.S. Department of
Environmental Protection

05/23/2025



ANTERO RESOURCES CORPORATION

Location: Tyler County, WV
Field: Tyler
Facility: Ritchie Petroleum Pad

Slot: Slot #06
Well: Hopper Unit 1H
Wellbore: Hopper Unit 1H PWB



Plot reference wellpath is Hopper Unit 1H PWB Rev-A.0
True vertical depths are referenced to Frontier 32 (RKB)
Measured depths are referenced to Frontier 32 (RKB)
Frontier 32 (RKB) to Mean Sea Level: 1210 feet
Mean Sea Level to Mud line (At Slot Slot #06): -1178 feet
Coordinates are in feet referenced to Slot

Grid System: NAD27 / UTM Zone 17 North, US feet
North Reference: Grid North
Scale: True distance
Depths are in feet
Created by: edsanyar on 2017-11-28
Database: WA MPL EASTERNUS Dam

Location Information					
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
Ritchie Petroleum Pad	1847374.770	14292738.540	39°21'33.290"N	80°58'51.380"W	
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	
Slot #06	0.00	0.00	1847374.770	14292738.540	
Comment	Hopper Unit 1H				
Frontier 32 (RKB) to Mud line (At Slot Slot #06)	32ft				
Mean Sea Level to Mud line (At Slot Slot #06)	-1178ft				
Frontier 32 (RKB) to Mean Sea Level	1210ft				

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #06	Hopper Unit 1H	Hopper Unit 1H AWB	Hopper Unit 1H AWB Proj 1.440E
Slot #06	Hopper Unit 1H	Hopper Unit 1H PWB	Hopper Unit 1H PWB Rev-A.0

Gyrodata SS Gyro <17-1/2"> (100°-325°) : 0.50° Inc, 117.00ft MD, 117.00ft TVD, 0.27ft VS
Gyrodata SS Gyro <12-1/4"> (325°)(388°-479°) : 0.65° Inc, 405.00ft MD, 404.98ft TVD, 2.98ft VS
Directional ONE MWD <12-1/4"> (479°)(535°-2532°) : 3.40° Inc, 562.00ft MD, 551.91ft TVD, 1.50ft VS

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	8519.00	42.610	167.860	6262.06	-152.25	-1402.32	5.37	-385.81
Proj. To Bottom	6605.00	49.700	166.000	6321.60	-212.61	-1388.25	8.39	-324.59
POE	6787.58	72.025	169.000	6410.00	-363.78	-1341.07	12.55	-166.77
Landing Pt.	7012.24	90.000	152.855	6445.00	-565.90	-1252.08	8.82	53.97
On Azimuth	7275.76	90.000	157.930	6445.00	-805.21	-1141.97	2.00	317.12
BHL	14401.64	90.000	157.930	6445.00	-7408.92	1535.54	0.00	7443.60

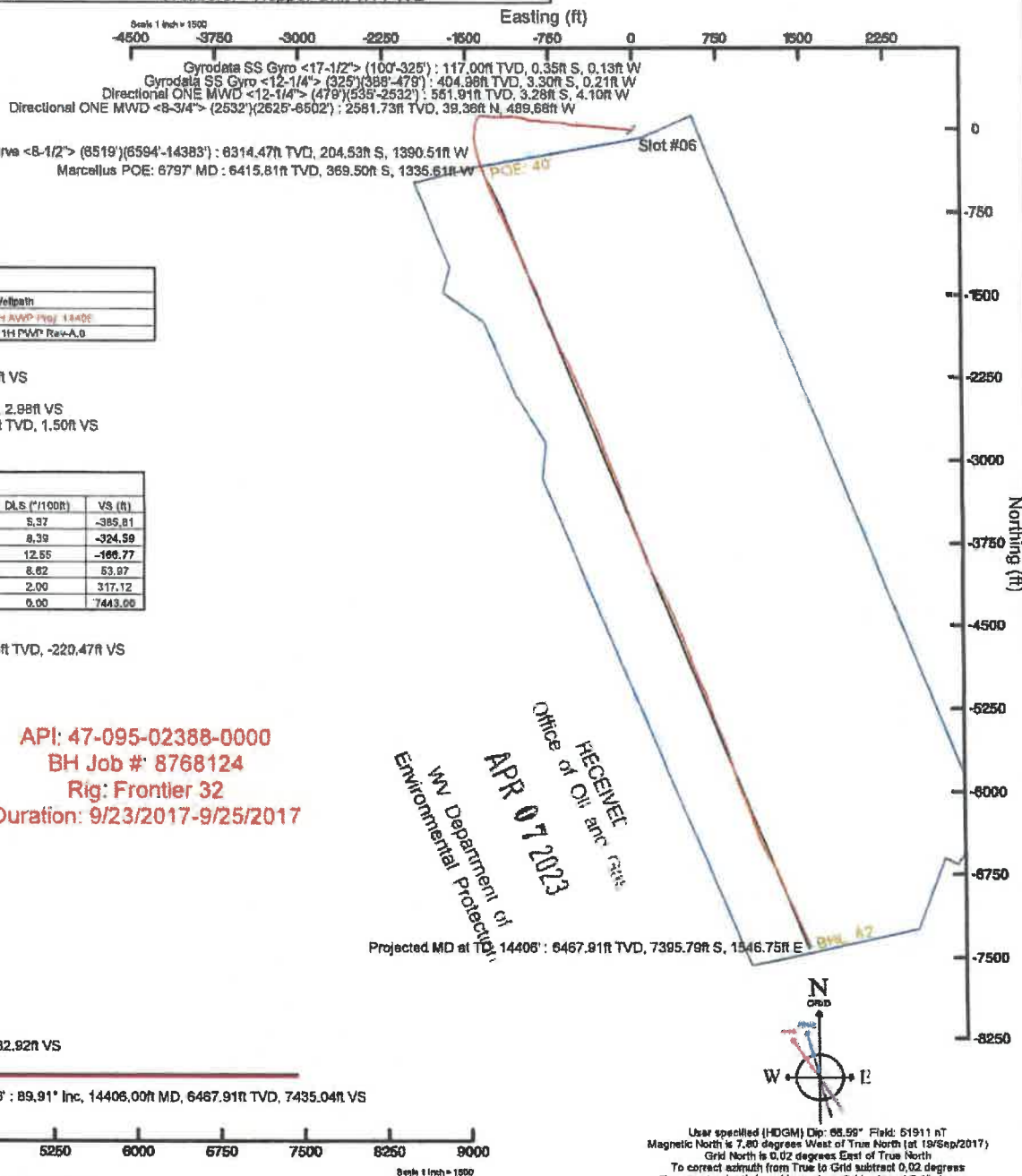
Directional ONE MWD <8-3/4"> (2532°)(2625°-6502°) : 15.92° Inc, 2642.00ft MD, 2581.73ft TVD, -220.47ft VS

API: 47-095-02388-0000
BH Job #: 8768124
Rig: Frontier 32
Duration: 9/23/2017-9/25/2017

BH AT Curve <8-1/2"> (6519°)(6594°-14383°) : 48.68° Inc, 6594.00ft MD, 6314.47ft TVD, -332.92ft VS
Marcellus POE: 6797° MD : 71.69° Inc, 6797.00ft MD, 6415.81ft TVD, -159.42ft VS

Projected MD at TD: 14406° : 89.91° Inc, 14406.00ft MD, 6467.91ft TVD, 7435.04ft VS

Vertical Section (ft)
Azimuth 157.93° with reference 0.00 N, 0.00 E



User specified (HDGM) Dip: 68.99° Field: 61911 nT
Magnetic North is 7.80 degrees West of True North (at 19/sep/2017)
Grid North is 0.02 degrees East of True North
To correct azimuth from True to Grid subtract 0.02 degrees
To correct azimuth from Magnetic to Grid subtract 7.82 degrees



Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWP
Facility	Ritchie Petroleum Pad		

REPORT SETUP INFORMATION

Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Edsaryar
Scale	0.999600	Report Generated	28/Nov/2017 at 09:59
Convergence at slot	0.02° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Hopper_Unit_1H_AWP_Proj_14406_.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	1647374.77	14292738.54	39°21'33.290"N	80°58'31.380"W
Facility Reference Pt			1647374.77	14292738.54	39°21'33.290"N	80°58'31.380"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM

Calculation method	Minimum curvature	Frontier 32 (RKB) to Facility Vertical Datum	32.00ft
Horizontal Reference Pt	Slot	Frontier 32 (RKB) to Mean Sea Level	1210.00ft
Vertical Reference Pt	Frontier 32 (RKB)	Frontier 32 (RKB) to Mud Line at Slot (Slot #06)	32.00ft
MD Reference Pt	Frontier 32 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	157.93°

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Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [ft/100ft]	Build Rate [ft/100ft]	Turn Rate [ft/100ft]	Comments
0.00	0.00	200.460	0.00	0.00	0.00	0.00	1647374.77	14292738.54	39°21'33.290"N	80°58'31.380"W	0.00	0.000	0.00	0.00	0.00	
32.00	0.00	200.460	32.00	0.00	0.00	0.00	1647374.77	14292738.54	39°21'33.290"N	80°58'31.380"W	0.00	0.000	0.00	0.00	0.00	
117.00	0.500	200.460	117.00	0.27	-0.35	-0.13	1647374.64	14292738.19	39°21'33.287"N	80°58'31.382"W	0.37	200.460	0.59	0.59	-187.69	Gyrodata SS Gyro <17-1/2"> (100'-325')
217.00	0.460	209.600	217.00	0.84	-1.11	-0.48	1647374.29	14292737.44	39°21'33.279"N	80°58'31.386"W	1.21	203.493	0.09	-0.04	9.14	
317.00	0.790	163.270	316.99	1.78	-2.11	-0.48	1647374.29	14292736.43	39°21'33.269"N	80°58'31.386"W	2.17	192.796	0.58	0.33	-46.33	
342.00	0.910	162.950	341.99	2.15	-2.47	-0.37	1647374.40	14292736.07	39°21'33.266"N	80°58'31.385"W	2.50	188.577	0.48	0.48	-1.28	
405.00	0.650	177.390	404.98	2.98	-3.30	-0.21	1647374.56	14292735.24	39°21'33.257"N	80°58'31.383"W	3.31	183.627	0.51	-0.41	22.92	Gyrodata SS Gyro <12-1/4"> (325')(388'-479')
496.00	1.790	275.620	495.97	2.81	-3.68	-1.60	1647373.17	14292734.86	39°21'33.254"N	80°58'31.400"W	4.01	203.499	2.19	1.25	107.95	
552.00	3.400	281.060	551.91	1.50	-3.28	-4.10	1647370.67	14292735.26	39°21'33.258"N	80°58'31.432"W	5.25	231.372	2.91	2.87	9.71	Directional ONE MWD <12-1/4"> (479')(535'-2532')
613.00	5.060	280.590	612.74	-0.94	-2.44	-8.52	1647366.25	14292736.11	39°21'33.266"N	80°58'31.488"W	8.86	254.048	2.72	2.72	-0.77	
704.00	7.630	274.690	703.17	-5.83	-1.20	-18.49	1647356.29	14292737.34	39°21'33.278"N	80°58'31.615"W	18.53	266.275	2.91	2.82	-6.48	
794.00	10.190	271.750	792.08	-11.74	-0.47	-32.40	1647342.38	14292738.07	39°21'33.285"N	80°58'31.793"W	32.41	269.165	2.89	2.84	-3.27	
854.00	11.870	271.080	850.97	-16.31	-0.19	-43.88	1647330.91	14292738.35	39°21'33.288"N	80°58'31.939"W	43.88	269.747	2.81	2.80	-1.12	
944.00	13.020	275.770	938.86	-24.68	1.00	-63.22	1647311.57	14292739.54	39°21'33.300"N	80°58'32.185"W	63.23	270.906	1.70	1.28	5.21	
1032.00	14.380	275.910	1024.35	-34.44	3.12	-83.95	1647290.85	14292741.66	39°21'33.321"N	80°58'32.449"W	84.01	272.130	1.55	1.55	0.16	
1121.00	14.650	275.690	1110.51	-44.87	5.38	-106.15	1647268.67	14292743.91	39°21'33.343"N	80°58'32.731"W	106.28	272.899	0.31	0.30	-0.25	
1209.00	14.970	275.360	1195.59	-55.28	7.54	-128.54	1647246.29	14292746.08	39°21'33.365"N	80°58'33.016"W	128.76	273.358	0.38	0.36	-0.37	
1297.00	15.030	274.690	1280.59	-65.66	9.54	-151.22	1647223.61	14292748.07	39°21'33.385"N	80°58'33.305"W	151.52	273.608	0.21	0.07	-0.76	
1386.00	14.980	275.820	1366.55	-76.23	11.65	-174.17	1647200.67	14292750.18	39°21'33.406"N	80°58'33.597"W	174.56	273.825	0.33	-0.06	1.27	
1474.00	15.230	276.800	1451.51	-87.13	14.17	-196.96	1647177.89	14292752.70	39°21'33.431"N	80°58'33.887"W	197.47	274.114	0.41	0.28	1.11	
1562.00	14.310	276.940	1536.60	-97.99	16.85	-219.23	1647155.62	14292755.38	39°21'33.457"N	80°58'34.171"W	219.88	274.395	1.05	-1.05	0.16	
1651.00	13.990	277.790	1622.90	-108.68	19.64	-240.81	1647134.06	14292758.17	39°21'33.485"N	80°58'34.446"W	241.61	274.662	0.43	-0.36	0.96	
1739.00	13.800	277.260	1708.33	-119.12	22.41	-261.76	1647113.11	14292760.94	39°21'33.512"N	80°58'34.712"W	262.72	274.892	0.26	-0.22	-0.60	
1827.00	14.100	277.020	1793.73	-129.47	25.04	-282.81	1647092.07	14292763.57	39°21'33.538"N	80°58'34.980"W	283.92	275.060	0.35	0.34	-0.27	
1916.00	13.780	275.330	1880.11	-139.62	27.35	-304.12	1647070.77	14292765.88	39°21'33.561"N	80°58'35.252"W	305.35	275.139	0.58	-0.36	-1.90	
2004.00	13.310	272.590	1965.67	-148.67	28.78	-324.68	1647050.22	14292767.31	39°21'33.575"N	80°58'35.513"W	325.95	275.066	0.90	-0.53	-3.11	
2092.00	12.870	270.550	2051.38	-156.66	29.33	-344.60	1647030.31	14292767.86	39°21'33.581"N	80°58'35.767"W	345.85	274.866	0.72	-0.50	-2.32	
2181.00	15.080	272.450	2137.74	-165.28	29.92	-366.08	1647008.84	14292768.45	39°21'33.587"N	80°58'36.041"W	367.30	274.673	2.54	2.48	2.13	
2269.00	16.760	274.770	2222.36	-175.76	31.47	-390.16	1646984.78	14292770.00	39°21'33.602"N	80°58'36.347"W	391.43	274.611	2.04	1.91	2.64	
2357.00	15.960	274.670	2306.80	-186.94	33.51	-414.87	1646960.07	14292772.04	39°21'33.622"N	80°58'36.662"W	416.22	274.618	0.91	-0.91	-0.11	

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Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION					
Operator	ANTERO RESOURCES CORPORATION			Slot	Slot #06
Area	Tyler County, WV			Well	Hopper Unit 1H
Field	Tyler			Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad				

WELLPATH DATA (181 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
2445.00	14.480	274.130	2391.71	-197.24	35.29	-437.90	1646937.05	14292773.81	39°21'33.640"N	80°58'36.955"W	439.32	274.607	1.69	-1.68	-0.61	
2534.00	15.260	272.910	2477.73	-207.10	36.68	-460.69	1646914.26	14292775.21	39°21'33.654"N	80°58'37.245"W	462.15	274.553	0.94	0.88	-1.37	
2549.00	15.450	274.320	2492.19	-208.82	36.93	-464.66	1646910.30	14292775.46	39°21'33.656"N	80°58'37.295"W	466.12	274.545	2.79	1.27	9.40	
2642.00	15.920	276.740	2581.73	-220.47	39.36	-489.68	1646885.29	14292777.89	39°21'33.680"N	80°58'37.614"W	491.26	274.596	0.87	0.51	2.60	Directional ONE MWD <8-3/4"> (2532') (2625'-6502')
2730.00	15.130	266.980	2666.53	-230.04	40.18	-513.14	1646861.84	14292778.70	39°21'33.688"N	80°58'37.913"W	514.71	274.477	3.10	-0.90	-11.09	
2818.00	16.320	273.800	2751.25	-239.18	40.39	-536.94	1646838.04	14292778.91	39°21'33.691"N	80°58'38.216"W	538.46	274.302	2.50	1.35	7.75	
2907.00	17.470	288.870	2836.45	-253.40	45.54	-562.08	1646812.92	14292784.06	39°21'33.742"N	80°58'38.536"W	563.92	274.632	5.07	1.29	16.93	
2998.00	17.120	285.040	2923.33	-270.43	53.44	-587.94	1646787.07	14292791.95	39°21'33.820"N	80°58'38.865"W	590.36	275.193	1.31	-0.38	-4.21	
3086.00	16.700	279.250	3007.53	-284.82	58.83	-612.93	1646762.09	14292797.35	39°21'33.873"N	80°58'39.183"W	615.74	275.482	1.97	-0.48	-6.58	
3174.00	15.880	273.830	3092.01	-296.65	61.67	-637.42	1646737.61	14292800.18	39°21'33.901"N	80°58'39.495"W	640.40	275.526	1.96	-0.93	-6.16	
3262.00	15.700	273.430	3176.69	-307.04	63.18	-661.32	1646713.72	14292801.70	39°21'33.916"N	80°58'39.799"W	664.33	275.457	0.24	-0.20	-0.45	
3351.00	15.680	273.530	3262.37	-317.42	64.64	-685.34	1646689.70	14292803.16	39°21'33.931"N	80°58'40.105"W	688.38	275.388	0.04	-0.02	0.11	
3439.00	15.780	273.020	3347.07	-327.63	66.01	-709.16	1646665.89	14292804.52	39°21'33.944"N	80°58'40.408"W	712.23	275.318	0.19	0.11	-0.58	
3527.00	17.030	274.800	3431.49	-338.53	67.71	-733.95	1646641.11	14292806.23	39°21'33.961"N	80°58'40.724"W	737.07	275.271	1.53	1.42	2.02	
3616.00	16.250	268.460	3516.77	-348.79	68.47	-759.39	1646615.69	14292806.98	39°21'33.969"N	80°58'41.048"W	762.47	275.152	2.22	-0.88	-7.12	
3704.00	14.880	277.820	3601.55	-358.74	69.68	-782.90	1646592.19	14292808.19	39°21'33.981"N	80°58'41.347"W	785.99	275.086	3.25	-1.56	10.64	
3792.00	16.470	281.750	3686.28	-371.31	73.76	-806.31	1646568.79	14292812.27	39°21'34.021"N	80°58'41.645"W	809.67	275.227	2.17	1.81	4.47	
3881.00	16.790	280.300	3771.56	-385.22	78.62	-831.30	1646543.80	14292817.13	39°21'34.069"N	80°58'41.963"W	835.01	275.403	0.59	0.36	-1.63	
3969.00	16.060	271.130	3855.98	-396.82	81.14	-855.98	1646519.13	14292819.64	39°21'34.094"N	80°58'42.277"W	859.82	275.415	3.06	-0.83	-10.42	
4057.00	15.380	265.700	3940.69	-405.18	80.50	-879.79	1646495.33	14292819.01	39°21'34.088"N	80°58'42.580"W	883.47	275.228	1.84	-0.77	-6.17	
4145.00	14.710	276.230	4025.69	-414.04	80.84	-902.54	1646472.59	14292819.35	39°21'34.091"N	80°58'42.870"W	906.15	275.118	3.19	-0.76	11.97	
4233.00	14.810	287.360	4110.81	-426.48	85.41	-924.39	1646450.75	14292823.91	39°21'34.136"N	80°58'43.148"W	928.32	275.279	3.22	0.11	12.65	
4322.00	15.530	292.860	4196.71	-442.12	93.43	-946.22	1646428.93	14292831.93	39°21'34.216"N	80°58'43.426"W	950.83	275.639	1.81	0.81	6.18	
4410.00	16.350	284.430	4281.34	-457.81	101.10	-969.08	1646406.08	14292839.59	39°21'34.292"N	80°58'43.717"W	974.34	275.956	2.79	0.93	-9.58	
4498.00	14.350	281.340	4366.19	-471.18	106.33	-991.77	1646383.40	14292844.82	39°21'34.343"N	80°58'44.006"W	997.45	276.119	2.45	-2.27	-3.51	
4587.00	13.840	278.590	4452.51	-482.68	110.09	-1013.11	1646362.07	14292848.58	39°21'34.381"N	80°58'44.278"W	1019.07	276.202	0.95	-0.57	-3.09	
4674.00	14.840	277.200	4536.80	-493.44	113.04	-1034.45	1646340.73	14292851.53	39°21'34.410"N	80°58'44.549"W	1040.61	276.236	1.22	1.15	-1.60	
4763.00	16.830	274.210	4622.42	-504.72	115.41	-1058.61	1646316.58	14292853.90	39°21'34.433"N	80°58'44.857"W	1064.88	276.222	2.42	2.24	-3.36	
4851.00	15.760	265.920	4706.90	-514.05	115.50	-1083.24	1646291.96	14292853.99	39°21'34.434"N	80°58'45.171"W	1089.38	276.086	2.91	-1.22	-9.42	
4939.00	14.700	263.780	4791.86	-520.79	113.44	-1106.26	1646268.95	14292851.93	39°21'34.414"N	80°58'45.464"W	1112.06	275.855	1.36	-1.20	-2.43	

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Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 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
5027.00	13.900	267.270	4877.08	-527.34	111.72	-1127.92	1646247.30	14292850.22	39°21'34.397"N	80°58'45.739"W	1133.44	275.657	1.34	-0.91	3.97	
5116.00	14.750	274.850	4963.32	-536.01	112.17	-1149.89	1646225.34	14292850.67	39°21'34.401"N	80°58'46.019"W	1155.35	275.572	2.31	0.96	8.52	
5204.00	16.520	273.980	5048.06	-546.58	113.99	-1173.54	1646201.71	14292852.48	39°21'34.419"N	80°58'46.320"W	1179.06	275.548	2.03	2.01	-0.99	
5293.00	18.740	268.990	5132.88	-557.27	114.61	-1200.46	1646174.79	14292853.11	39°21'34.426"N	80°58'46.663"W	1205.92	275.454	3.02	2.49	-5.61	
5381.00	18.400	269.960	5216.30	-567.56	114.35	-1228.48	1646148.78	14292852.85	39°21'34.423"N	80°58'47.020"W	1233.79	275.318	0.52	-0.39	1.10	
5469.00	16.530	274.050	5300.24	-578.29	115.23	-1254.86	1646120.41	14292853.72	39°21'34.432"N	80°58'47.355"W	1260.14	275.247	2.54	-2.12	4.65	
5557.00	15.780	269.620	5384.77	-588.22	116.03	-1279.31	1646095.97	14292854.53	39°21'34.440"N	80°58'47.667"W	1284.57	275.183	1.64	-0.85	-5.03	
5645.00	16.060	274.870	5469.40	-598.16	116.99	-1303.41	1646071.89	14292855.48	39°21'34.449"N	80°58'47.974"W	1308.65	275.129	1.67	0.32	5.97	
5734.00	15.110	277.510	5555.13	-609.46	119.55	-1327.18	1646048.13	14292858.04	39°21'34.457"N	80°58'48.276"W	1332.55	275.147	1.33	-1.07	2.97	
5778.00	14.730	275.070	5597.64	-614.84	120.79	-1338.43	1646036.87	14292859.28	39°21'34.487"N	80°58'48.419"W	1343.87	275.157	1.67	-0.86	-5.55	
5822.00	13.590	266.910	5640.31	-619.08	121.01	-1349.17	1646026.14	14292859.50	39°21'34.489"N	80°58'48.556"W	1354.59	275.125	5.22	-2.59	-18.55	
5866.00	13.460	248.090	5683.11	-620.77	118.82	-1359.09	1646016.23	14292857.31	39°21'34.468"N	80°58'48.682"W	1364.27	274.996	9.97	-0.30	-42.77	
5910.00	16.940	233.280	5725.58	-619.17	113.07	-1368.98	1646006.34	14292851.57	39°21'34.411"N	80°58'48.808"W	1373.64	274.722	11.79	7.91	-33.66	
5954.00	18.370	221.270	5767.52	-614.43	104.02	-1378.70	1645996.63	14292842.52	39°21'34.321"N	80°58'48.932"W	1382.62	274.315	8.87	3.25	-27.30	
5999.00	19.810	211.220	5810.06	-606.69	92.17	-1387.33	1645988.00	14292830.67	39°21'34.204"N	80°58'49.042"W	1390.39	273.801	7.96	3.20	-22.33	
6043.00	20.990	202.680	5851.31	-596.63	78.52	-1394.24	1645981.09	14292817.03	39°21'34.069"N	80°58'49.130"W	1396.44	273.223	7.27	2.68	-19.41	
6087.00	21.800	194.810	5892.28	-584.50	63.35	-1399.36	1645975.97	14292801.86	39°21'33.919"N	80°58'49.195"W	1400.80	272.592	6.77	1.84	-17.89	
6131.00	21.980	187.080	5933.12	-570.77	47.27	-1402.47	1645972.87	14292785.79	39°21'33.761"N	80°58'49.235"W	1403.28	271.930	6.56	0.41	-17.57	
6175.00	22.750	184.370	5973.81	-555.96	30.62	-1404.13	1645971.20	14292769.14	39°21'33.596"N	80°58'49.256"W	1404.46	271.249	2.92	1.75	-6.16	
6219.00	24.080	183.930	6014.19	-540.27	13.18	-1405.39	1645969.94	14292751.71	39°21'33.424"N	80°58'49.272"W	1405.46	270.537	3.05	3.02	-1.00	
6263.00	27.070	186.540	6053.87	-523.41	-5.73	-1407.15	1645968.19	14292732.81	39°21'33.237"N	80°58'49.295"W	1407.16	269.767	7.26	6.80	5.93	
6307.00	30.510	186.950	6092.43	-504.85	-26.77	-1409.64	1645965.69	14292711.78	39°21'33.029"N	80°58'49.326"W	1409.90	268.912	7.83	7.82	0.93	
6352.00	32.920	184.520	6130.71	-483.92	-50.30	-1411.99	1645963.35	14292688.26	39°21'32.796"N	80°58'49.356"W	1412.88	267.960	6.06	5.36	-5.40	
6396.00	35.570	178.380	6167.09	-461.23	-75.03	-1412.57	1645962.77	14292663.54	39°21'32.552"N	80°58'49.364"W	1414.56	266.960	9.89	6.02	-13.95	
6440.00	38.410	174.160	6202.23	-436.11	-101.42	-1410.82	1645964.52	14292637.16	39°21'32.291"N	80°58'49.342"W	1414.46	265.888	8.65	6.45	-9.59	
6484.00	41.250	169.800	6236.03	-408.78	-129.31	-1406.86	1645968.48	14292609.28	39°21'32.015"N	80°58'49.291"W	1412.79	264.748	9.05	6.45	-9.91	
6519.00	42.610	167.860	6262.08	-385.84	-152.25	-1402.32	1645973.01	14292586.35	39°21'31.789"N	80°58'49.234"W	1410.56	263.804	5.37	3.89	-5.54	
6575.00†	47.141	166.995	6301.74	-346.88	-190.80	-1393.71	1645981.62	14292547.81	39°21'31.408"N	80°58'49.124"W	1406.71	262.205	8.16	8.09	-1.54	Middlesex: 6575' MD
6594.00	48.680	166.730	6314.48	-332.92	-204.53	-1390.51	1645984.82	14292534.09	39°21'31.272"N	80°58'49.083"W	1405.47	261.632	8.16	8.10	-1.39	BH AT Curve <8-1/2"> (6519')(6594'-14383')
6598.00	48.830	166.690	6317.12	-329.96	-207.46	-1389.81	1645985.51	14292531.16	39°21'31.243"N	80°58'49.074"W	1405.21	261.510	3.82	3.75	-1.00	

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Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 stations) † = interpolated/extrapolated station

MD (ft)	Inclination [°]	Azimuth [°]	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir [°]	DLS ft/100ft	Build Rate ft/100ft	Turn Rate ft/100ft	Comments
6645.00	52.520	164.220	6346.89	-293.91	-242.64	-1380.67	1645994.66	14292496.00	39°21'30.895"N	80°58'48.958"W	1401.82	260.033	8.84	7.85	-5.26	
6694.00	59.660	159.860	6374.22	-253.39	-281.26	-1368.08	1646007.24	14292457.39	39°21'30.513"N	80°58'48.798"W	1396.69	258.383	16.33	14.57	-8.90	
6736.00†	65.317	159.420	6393.61	-216.17	-316.17	-1355.12	1646020.20	14292422.50	39°21'30.168"N	80°58'48.633"W	1391.51	256.867	13.50	13.47	-1.05	Burkett: 6736' MD
6741.00	65.990	159.370	6395.68	-211.62	-320.43	-1353.52	1646021.80	14292418.24	39°21'30.126"N	80°58'48.613"W	1390.93	256.681	13.50	13.47	-0.99	
6781.00†	70.198	160.191	6410.60	-174.53	-355.25	-1340.70	1646034.61	14292383.43	39°21'29.782"N	80°58'48.450"W	1386.96	255.159	10.69	10.52	2.05	Tully: 6781' MD
6789.00	71.040	160.350	6413.25	-166.99	-362.35	-1338.15	1646037.16	14292376.33	39°21'29.712"N	80°58'48.417"W	1386.34	254.848	10.69	10.53	1.98	
6797.00†	71.692	160.523	6415.81	-159.42	-369.50	-1335.61	1646039.70	14292369.19	39°21'29.641"N	80°58'48.385"W	1385.78	254.536	8.40	8.14	2.16	Marcellus POE: 6797' MD
6836.00	74.870	161.350	6427.03	-122.13	-404.79	-1323.42	1646051.89	14292333.91	39°21'29.292"N	80°58'48.230"W	1383.94	252.993	8.40	8.15	2.12	
6884.00	79.360	161.220	6437.73	-75.43	-449.10	-1308.40	1646066.89	14292289.62	39°21'28.864"N	80°58'48.039"W	1383.33	251.056	9.36	9.35	-0.27	
6931.00	83.180	160.840	6444.86	-29.05	-493.02	-1293.31	1646081.98	14292245.71	39°21'28.420"N	80°58'47.847"W	1384.09	249.133	8.17	8.13	-0.81	
6978.00	87.010	160.010	6448.88	17.73	-537.14	-1277.62	1646097.66	14292201.62	39°21'27.984"N	80°58'47.647"W	1385.94	247.197	8.34	8.15	-1.77	
7025.00	89.910	157.500	6450.14	84.70	-580.92	-1260.60	1646114.68	14292157.86	39°21'27.551"N	80°58'47.430"W	1388.01	245.258	8.16	6.17	-5.34	
7074.00	90.710	155.440	6449.87	113.68	-625.84	-1241.04	1646134.23	14292112.95	39°21'27.107"N	80°58'47.182"W	1389.91	243.239	4.51	1.63	-4.20	
7170.00	90.280	155.840	6449.05	209.60	-713.29	-1201.44	1646173.81	14292025.54	39°21'26.243"N	80°58'46.678"W	1397.23	239.303	0.61	-0.45	0.42	
7264.00	90.340	154.920	6448.54	303.50	-798.74	-1162.28	1646212.96	14291940.12	39°21'25.398"N	80°58'46.179"W	1410.28	235.502	0.98	0.06	-0.98	
7360.00	90.310	155.600	6447.99	399.39	-885.93	-1122.11	1646253.12	14291852.97	39°21'24.537"N	80°58'45.668"W	1429.68	231.708	0.71	-0.03	0.71	
7455.00	90.280	156.980	6447.50	494.35	-972.91	-1083.91	1646291.30	14291766.02	39°21'23.677"N	80°58'45.182"W	1456.50	228.089	1.45	-0.03	1.45	
7551.00	90.340	156.580	6446.98	590.33	-1061.13	-1046.06	1646329.13	14291677.84	39°21'22.805"N	80°58'44.701"W	1490.05	224.590	0.42	0.06	-0.42	
7644.00	90.370	157.610	6446.41	683.32	-1146.79	-1009.86	1646365.31	14291592.21	39°21'21.958"N	80°58'44.240"W	1528.06	221.367	1.11	0.03	1.11	
7739.00	90.220	157.350	6445.92	778.31	-1234.55	-973.48	1646401.68	14291504.49	39°21'21.091"N	80°58'43.777"W	1572.19	218.257	0.32	-0.16	-0.27	
7834.00	90.090	153.650	6445.66	873.21	-1320.98	-934.09	1646441.06	14291418.09	39°21'20.236"N	80°58'43.276"W	1617.87	215.265	3.90	-0.14	-3.89	
7928.00	90.000	151.460	6445.59	966.79	-1404.39	-890.77	1646484.36	14291334.71	39°21'19.412"N	80°58'42.725"W	1663.07	212.386	2.33	-0.10	-2.33	
8024.00	89.600	157.550	6445.92	1052.57	-1491.01	-849.47	1646525.64	14291248.13	39°21'18.556"N	80°58'42.199"W	1716.01	209.671	6.36	-0.42	6.34	
8119.00	91.970	162.110	6444.62	1157.48	-1580.14	-816.72	1646558.38	14291159.03	39°21'17.675"N	80°58'41.783"W	1778.73	207.333	5.41	2.49	4.80	
8214.00	90.710	155.950	6442.40	1252.39	-1668.78	-782.75	1646592.34	14291070.43	39°21'16.798"N	80°58'41.350"W	1843.24	205.129	6.62	-1.33	-6.48	
8309.00	90.120	156.330	6441.71	1347.34	-1755.66	-744.32	1646630.75	14290983.59	39°21'15.940"N	80°58'40.861"W	1906.92	202.975	0.74	-0.62	0.40	
8405.00	91.050	160.110	6440.73	1443.32	-1844.78	-708.71	1646666.34	14290894.50	39°21'15.059"N	80°58'40.408"W	1976.23	201.015	4.05	0.97	3.94	
8499.00	92.340	158.750	6437.95	1537.24	-1932.75	-675.70	1646699.34	14290806.57	39°21'14.189"N	80°58'39.988"W	2047.46	199.270	1.99	1.37	-1.45	
8594.00	90.050	149.580	6435.95	1631.91	-2018.14	-634.35	1646740.67	14290721.22	39°21'13.345"N	80°58'39.462"W	2115.48	197.449	9.94	-2.40	-9.65	
8689.00	91.540	152.830	6434.63	1726.23	-2101.37	-588.61	1646786.40	14290638.02	39°21'12.522"N	80°58'38.880"W	2182.25	195.648	3.76	1.56	3.42	

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Actual Wellpath Report

Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 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 [ft/100ft]	Build Rate [ft/100ft]	Turn Rate [ft/100ft]	Comments
8784.00	91.140	157.570	6432.40	1821.07	-2187.56	-548.78	1646826.21	14290551.86	39°21'11.670"N	80°58'38.374"W	2255.34	194.083	5.01	-0.42	4.99	
8879.00	89.880	155.200	6431.56	1916.02	-2274.59	-510.73	1646864.25	14290464.86	39°21'10.810"N	80°58'37.889"W	2331.22	192.655	2.83	-1.33	-2.49	
8974.00	89.940	156.850	6431.71	2010.96	-2361.39	-472.13	1646902.83	14290378.10	39°21'09.952"N	80°58'37.398"W	2408.13	191.308	1.74	0.06	1.74	
9069.00	89.290	158.510	6432.35	2105.96	-2449.27	-436.05	1646938.89	14290290.26	39°21'09.083"N	80°58'36.939"W	2487.78	190.095	1.88	-0.68	1.75	
9164.00	89.510	161.380	6433.34	2200.88	-2538.49	-403.48	1646971.45	14290201.07	39°21'08.202"N	80°58'36.525"W	2570.36	189.031	3.03	0.23	3.02	
9259.00	87.140	156.630	6436.12	2295.79	-2627.12	-369.47	1647005.45	14290112.48	39°21'07.326"N	80°58'36.092"W	2652.97	188.005	5.59	-2.49	-5.00	
9354.00	87.690	157.800	6440.40	2390.69	-2714.61	-332.72	1647042.18	14290025.02	39°21'06.461"N	80°58'35.625"W	2734.93	186.988	1.36	0.58	1.23	
9449.00	87.810	159.870	6444.13	2485.59	-2803.13	-298.45	1647076.44	14289936.54	39°21'05.586"N	80°58'35.189"W	2818.97	186.077	2.18	0.13	2.18	
9544.00	87.750	160.810	6447.81	2580.44	-2892.53	-266.51	1647108.37	14289847.18	39°21'04.702"N	80°58'34.783"W	2904.78	185.264	0.99	-0.06	0.99	
9640.00	87.810	157.480	6451.53	2676.33	-2982.16	-232.36	1647142.50	14289757.58	39°21'03.816"N	80°58'34.348"W	2991.19	184.455	3.47	0.06	-3.47	
9735.00	88.830	157.760	6454.32	2771.29	-3069.96	-196.21	1647178.64	14289669.81	39°21'02.948"N	80°58'33.888"W	3076.22	183.657	1.11	1.07	0.29	
9830.00	88.920	159.550	6456.19	2866.26	-3158.42	-161.64	1647213.20	14289581.39	39°21'02.074"N	80°58'33.449"W	3162.56	182.930	1.89	0.09	1.88	
9925.00	89.450	161.290	6457.54	2961.15	-3247.92	-129.81	1647245.02	14289491.93	39°21'01.189"N	80°58'33.044"W	3250.51	182.289	1.91	0.56	1.83	
10020.00	89.480	160.630	6458.42	3056.02	-3337.72	-98.82	1647275.99	14289402.17	39°21'00.302"N	80°58'32.649"W	3339.18	181.696	0.70	0.03	-0.69	
10115.00	89.540	159.720	6459.24	3150.94	-3427.08	-66.60	1647308.20	14289312.84	39°20'59.418"N	80°58'32.240"W	3427.73	181.113	0.96	0.06	-0.96	
10210.00	89.450	159.110	6460.07	3245.90	-3516.01	-33.20	1647341.58	14289223.94	39°20'58.539"N	80°58'31.815"W	3516.17	180.541	0.65	-0.09	-0.64	
10305.00	89.480	158.650	6460.96	3340.89	-3604.64	1.00	1647375.77	14289135.35	39°20'57.663"N	80°58'31.380"W	3604.64	179.984	0.44	0.03	-0.44	
10401.00	89.380	163.810	6461.92	3436.69	-3695.51	31.85	1647406.60	14289044.52	39°20'56.765"N	80°58'30.987"W	3695.65	179.506	5.33	-0.10	5.33	
10496.00	90.310	161.280	6462.17	3531.37	-3786.13	60.34	1647435.08	14288953.94	39°20'55.869"N	80°58'30.625"W	3786.61	179.087	2.84	0.98	-2.66	
10591.00	89.690	156.810	6462.17	3626.33	-3874.82	94.31	1647469.04	14288865.28	39°20'54.992"N	80°58'30.193"W	3875.97	178.606	4.75	-0.65	-4.71	
10686.00	89.630	152.940	6462.74	3721.17	-3960.81	134.63	1647509.35	14288779.32	39°20'54.142"N	80°58'29.680"W	3963.10	178.053	4.07	-0.06	-4.07	
10782.00	89.540	151.970	6463.43	3816.73	-4045.93	179.03	1647553.72	14288694.24	39°20'53.301"N	80°58'29.115"W	4049.89	177.466	1.01	-0.09	-1.01	
10876.00	89.290	150.560	6464.39	3910.09	-4128.35	224.21	1647598.89	14288611.85	39°20'52.486"N	80°58'28.540"W	4134.43	176.891	1.52	-0.27	-1.50	
10971.00	89.350	154.980	6465.52	4004.67	-4212.79	267.67	1647642.33	14288527.44	39°20'51.652"N	80°58'27.987"W	4221.29	176.364	4.65	0.06	4.65	
11066.00	89.660	156.270	6466.34	4099.59	-4299.32	306.87	1647681.52	14288440.95	39°20'50.796"N	80°58'27.489"W	4310.26	175.917	1.40	0.33	1.36	
11161.00	90.120	158.000	6466.52	4194.58	-4386.85	343.79	1647718.42	14288353.45	39°20'49.931"N	80°58'27.019"W	4400.30	175.519	1.88	0.48	1.82	
11256.00	89.660	156.200	6466.71	4289.56	-4474.36	380.75	1647755.37	14288265.98	39°20'49.066"N	80°58'26.549"W	4490.53	175.136	1.96	-0.48	-1.89	
11351.00	90.340	159.240	6466.71	4384.55	-4562.25	416.76	1647791.37	14288178.12	39°20'48.197"N	80°58'26.091"W	4581.25	174.780	3.28	0.72	3.20	
11445.00	90.220	159.020	6466.25	4478.53	-4650.09	450.25	1647824.84	14288090.32	39°20'47.329"N	80°58'25.665"W	4671.83	174.470	0.27	-0.13	-0.23	
11540.00	89.320	158.760	6466.63	4573.52	-4738.71	484.47	1647859.05	14288001.74	39°20'46.453"N	80°58'25.230"W	4763.41	174.163	0.99	-0.95	-0.28	

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Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 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
11634.00	90.220	160.180	6467.01	4667.48	-4826.73	517.44	1647892.01	14287913.75	39°20'45.583"N	80°58'24.810"W	4854.39	173.881	1.80	0.96	1.52	
11729.00	90.310	159.560	6466.57	4762.42	-4915.92	550.14	1647924.69	14287824.59	39°20'44.701"N	80°58'24.395"W	4946.61	173.615	0.66	0.09	-0.65	
11825.00	89.380	156.370	6466.83	4858.41	-5004.90	586.15	1647960.68	14287735.65	39°20'43.822"N	80°58'23.936"W	5039.11	173.320	3.46	-0.97	-3.32	
11920.00	89.230	155.120	6467.98	4953.33	-5091.51	625.17	1647999.69	14287649.08	39°20'42.966"N	80°58'23.440"W	5129.74	173.000	1.33	-0.16	-1.32	
12015.00	90.580	162.000	6468.14	5048.26	-5179.88	659.88	1648034.38	14287560.75	39°20'42.092"N	80°58'22.999"W	5221.74	172.740	7.38	1.42	7.24	
12110.00	91.020	162.970	6466.81	5142.95	-5270.46	688.46	1648062.96	14287470.20	39°20'41.197"N	80°58'22.635"W	5315.24	172.558	1.12	0.46	1.02	
12205.00	89.940	157.110	6466.01	5237.84	-5359.71	720.88	1648095.36	14287380.98	39°20'40.315"N	80°58'22.223"W	5407.97	172.340	6.27	-1.14	-6.17	
12299.00	89.880	155.540	6466.16	5331.80	-5445.80	758.62	1648133.09	14287294.93	39°20'39.464"N	80°58'21.743"W	5498.38	172.070	1.67	-0.06	-1.67	
12394.00	90.000	159.320	6466.26	5426.78	-5533.51	795.08	1648169.53	14287207.26	39°20'38.597"N	80°58'21.279"W	5590.33	171.823	3.98	0.13	3.98	
12489.00	89.910	161.150	6466.33	5521.70	-5622.91	827.20	1648201.64	14287117.89	39°20'37.713"N	80°58'20.871"W	5683.43	171.631	1.93	-0.09	1.93	
12584.00	89.850	163.570	6466.53	5616.41	-5713.43	855.99	1648230.41	14287027.40	39°20'36.818"N	80°58'20.505"W	5777.20	171.479	2.55	-0.06	2.55	
12679.00	89.910	162.300	6466.73	5711.05	-5804.25	883.86	1648258.28	14286936.63	39°20'35.920"N	80°58'20.150"W	5871.16	171.342	1.34	0.06	-1.34	
12774.00	89.940	160.620	6466.86	5805.86	-5894.31	914.07	1648288.47	14286846.60	39°20'35.030"N	80°58'19.766"W	5964.77	171.185	1.77	0.03	-1.77	
12869.00	89.970	157.940	6466.93	5900.83	-5983.16	947.68	1648322.07	14286757.78	39°20'34.152"N	80°58'19.339"W	6057.75	171.000	2.82	0.03	-2.82	
12964.00	89.780	157.090	6467.14	5995.82	-6070.94	984.01	1648358.38	14286670.04	39°20'33.284"N	80°58'18.876"W	6150.17	170.793	0.92	-0.20	-0.89	
13059.00	89.970	159.280	6467.35	6090.82	-6159.13	1019.31	1648393.67	14286581.89	39°20'32.413"N	80°58'18.428"W	6242.91	170.603	2.31	0.20	2.31	
13154.00	89.880	161.210	6467.47	6185.73	-6248.53	1051.42	1648425.77	14286492.52	39°20'31.529"N	80°58'18.019"W	6336.38	170.449	2.03	-0.09	2.03	
13248.00	89.940	162.890	6467.62	6279.49	-6337.95	1080.39	1648454.72	14286403.13	39°20'30.645"N	80°58'17.651"W	6429.38	170.326	1.79	0.06	1.79	
13343.00	90.490	160.850	6467.26	6374.26	-6428.23	1109.95	1648484.27	14286312.89	39°20'29.753"N	80°58'17.275"W	6523.35	170.203	2.22	0.58	-2.15	
13438.00	90.980	153.000	6466.04	6469.16	-6515.56	1147.15	1648521.46	14286225.60	39°20'28.888"N	80°58'16.802"W	6615.77	170.015	8.28	0.52	-8.26	
13533.00	89.780	149.140	6465.41	6563.46	-6598.68	1193.09	1648557.38	14286142.51	39°20'28.068"N	80°58'16.217"W	6705.68	169.751	4.25	-1.26	-4.06	
13628.00	89.880	151.610	6465.69	6657.63	-6681.26	1240.05	1648614.32	14286059.97	39°20'27.251"N	80°58'15.620"W	6795.36	169.485	2.60	0.11	2.60	
13723.00	89.230	157.760	6466.43	6752.43	-6767.09	1280.65	1648654.91	14285974.17	39°20'26.403"N	80°58'15.104"W	6887.20	169.284	6.51	-0.68	6.47	
13818.00	89.940	160.510	6467.12	6847.39	-6855.85	1314.48	1648688.72	14285885.45	39°20'25.525"N	80°58'14.673"W	6980.73	169.146	2.99	0.75	2.89	
13913.00	89.910	155.840	6467.24	6942.36	-6944.01	1349.79	1648724.02	14285797.32	39°20'24.654"N	80°58'14.224"W	7073.99	169.000	4.92	-0.03	-4.92	
14009.00	89.970	155.620	6467.34	7038.29	-7031.53	1389.25	1648763.46	14285709.84	39°20'23.789"N	80°58'13.723"W	7167.46	168.824	0.24	0.06	-0.23	
14104.00	89.940	155.000	6467.42	7133.19	-7117.84	1428.93	1648803.13	14285623.56	39°20'22.936"N	80°58'13.218"W	7259.88	168.649	0.65	-0.03	-0.65	
14199.00	89.940	155.890	6467.52	7228.10	-7204.25	1468.41	1648842.59	14285537.18	39°20'22.081"N	80°58'12.716"W	7352.38	168.479	0.94	0.00	0.94	
14294.00	89.850	157.050	6467.69	7323.07	-7291.35	1506.34	1648880.50	14285450.12	39°20'21.221"N	80°58'12.233"W	7445.32	168.327	1.22	-0.09	1.22	
14383.00	89.910	160.030	6467.88	7418.06	-7374.17	1638.89	1648913.05	14285367.33	39°20'20.402"N	80°58'11.819"W	7533.03	168.212	3.35	0.07	3.35	

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Hopper Unit 1H AWP Proj: 14406'

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REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH DATA (181 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
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]	
14406.00	89.910	160.030	6467.91	7435.04	-7395.79	1546.75	1648920.90	14285345.72	39°20'20.188"N	80°58'11.720"W	7555.80	168.187	0.00	0.00	0.00	Projected MD at TD: 14406'

HOLE & CASING SECTIONS - Ref Wellbore: Hopper Unit 1H AWB Ref Wellpath: Hopper Unit 1H AWP Proj: 14406'

String/Diameter	Start MD	End MD	Interval	Start TVD	End TVD	Start N/S	Start E/W	End N/S	End E/W
	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]	[ft]
20in Conductor	32.00	112.00	80.00	32.00	112.00	0.00	0.00	-0.31	-0.11
17.5in Open Hole	112.00	373.40	261.40	112.00	373.38	-0.31	-0.11	-2.92	-0.26
13.375in Casing Surface	32.00	373.40	341.40	32.00	373.38	0.00	0.00	-2.92	-0.26
12.25in Open Hole	373.40	2621.60	2248.20	373.38	2562.11	-2.92	-0.26	38.73	-484.14
9.625in Casing Intermediate	32.00	2621.60	2589.60	32.00	2562.11	0.00	0.00	38.73	-484.14
8.75in Open Hole	2621.60	6605.00	3983.40	2562.11	6321.69	38.73	-484.14	-212.60	-1388.58
8.5in Open Hole	6605.00	14406.00	7801.00	6321.69	6467.91	-212.60	-1388.58	-7395.79	1546.75
5.5in Casing Production	32.00	14406.00	14374.00	32.00	6467.91	0.00	0.00	-7395.79	1546.75

TARGETS

Name	TVD	North	East	Grid East	Grid North	Latitude	Longitude	Shape
	[ft]	[ft]	[ft]	[US ft]	[US ft]			
Hopper Unit 1H POE - Rev-2	6410.00	-363.78	-1341.07	1646034.24	14292374.90	39°21'29.698"N	80°58'48.454"W	point
Hopper Unit 1H BHL - Rev-2	6445.00	-7408.92	1535.54	1648909.69	14285332.59	39°20'20.058"N	80°58'11.862"W	point
Hopper Unit 1H LP - Rev-2	6445.00	-565.90	-1252.08	1646123.19	14292172.87	39°21'27.700"N	80°58'47.322"W	point

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Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

WELLPATH COMPOSITION - Ref Wellbore: Hopper Unit 1H AWB Ref Wellpath: Hopper Unit 1H AWP Proj: 14406'

Start MD (ft)	End MD (ft)	Positional Uncertainty Model	Log Name/Comment	Wellbore
32.00	342.00	Gyrodatta standard - Single-shot	01 Gyrodatta SS Gyro <17-1/2">(100'-325')	Hopper Unit 1H AWB
342.00	496.00	Gyrodatta standard - Single-shot	02 Gyrodatta SS Gyro <12-1/4">(325')(388'-479')	Hopper Unit 1H AWB
496.00	2549.00	ISCWSA MWD, Rev. 4 (Standard)	03 Directional ONE MWD <12-1/4">(479')(535'-2532')	Hopper Unit 1H AWB
2549.00	6519.00	ISCWSA MWD, Rev. 4 (Standard)	04 Directional ONE MWD <8-3/4">(2532')(2625'-6502')	Hopper Unit 1H AWB
6519.00	14383.00	BHI AutoTrak Curve (Short)	05 BHI AT Curve <8-1/2">(6519')(6594'-14383')	Hopper Unit 1H AWB
14383.00	14406.00	Blind Drilling (std)	Projection to bit	Hopper Unit 1H AWB

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Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #06
Area	Tyler County, WV	Well	Hopper Unit 1H
Field	Tyler	Wellbore	Hopper Unit 1H AWB
Facility	Ritchie Petroleum Pad		

COMMENTS

Wellpath general comments

API: 47-095-02388-0000

BH Job #: 8768124

Rig: Frontier 32

Duration: 9/23/2017-9/25/2017

Gyrodata SS Gyro <17-1/2"> (100'-325')

Gyrodata SS Gyro <12-1/4"> (325')(388'-479')

Directional ONE MWD <12-1/4"> (479')(535'-2532')

Directional ONE MWD <8-3/4"> (2532')(2625'-6502')

BH AT Curve <8-1/2"> (6519')(6594'-14383')

Middlesex: 6575' MD

Burkett: 6736' MD

Tully: 6781' MD

Marcellus POE: 6797' MD

Projected MD at TD: 14406'

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