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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Tuesday, December 10, 2019  
WELL WORK PLUGGING PERMIT  
Horizontal 6A Plugging

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit approval for TELESTAR UNIT 2H  
47-017-06881-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. Please be advised that form WR-38, Affidavit of Plugging and Filling Well, is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin  
Chief

Operator's Well Number: TELESTAR UNIT 2H  
Farm Name: MARY E. DEETS AND/OR PART  
U.S. WELL NUMBER: 47-017-06881-00-00  
Horizontal 6A Plugging  
Date Issued: 12/10/2019

I

47-017-06881 P

## PERMIT CONDITIONS

West Virginia Code § 22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

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### CONDITIONS

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1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
2. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
3. Well work activities shall not constitute a hazard to the safety of persons.

WW-4B  
Rev. 2/01

1) Date \_\_\_\_\_, 20\_\_\_\_\_  
2) Operator's  
Well No. Telstar Unit 2H  
3) API Well No. 47-017-06881P

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil \_\_\_\_/ Gas X/ Liquid injection \_\_\_\_/ Waste disposal \_\_\_\_/  
(If "Gas, Production \_\_\_\_ or Underground storage \_\_\_\_) Deep \_\_\_\_/ ShallowX

5) Location: Elevation 1422' Watershed Middle Island Creek  
District West Union County Doddridge Quadrangle West Union

6) Well Operator Antero Resources Corporation 7) Designated Agent CT Corporation System - Dianna Stamper  
Address 1615 Wynkoop Street Address 5400 D Big Tyler Road  
Denver, CO 80202 Charleston, WV 25313

8) Oil and Gas Inspector to be notified Name Daniel Flack  
Address 601 57th Street SE  
Charleston, WV 25304  
9) Plugging Contractor Name N/A - Antero will plug well  
Address \_\_\_\_\_

10) Work Order: The work order for the manner of plugging this well is as follows:  
**\*Please See Attached Work Order**

RECEIVED  
Office of Oil and Gas

OCT 23 2019

WV Department of  
Environmental Protection

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

OK VERBAL w/ DRILLING.

Work order approved by inspector \_\_\_\_\_ Date \_\_\_\_\_

Y/M/M

## Telstar 2H – H&amp;P 317 Procedure

1. Skid H&P 317 from Mondeo 3H to Telstar 2H
2. Nipple up and test BOP's
3. Pull abandonment plug
4. Set wear bushing
5. Pick up drill out assembly
  - a. Mill tooth bit
  - b. Bit sub with float insert
  - c. Junk basket
  - d. Fifteen joints of HWDP
  - e. Twenty one joints of five inch heavyweight drill pipe
6. TIH to CIBP
7. Circulate bottoms-up
8. Drill out CIBP.
  - a. WOB - 10-20k
  - b. Rotary 40-60
  - c. Flowrate – 500+ gallons per minute
9. Continue to run in hole to 10 feet above fish
10. Circulate hole clean. Make sure to circulate until hole is clean of gas & cuttings
11. Trip out of hole
12. Pick up screw in sub assembly
  - a. Screw in sub
  - b. 5.5 drill-pipe to surface
13. TIH to top of fish.
14. Screw into fish
  - a. Do not torque connection
15. Establish circulation through fish and circulate bottoms-up
16. Rig up cementers
17. Pump Cement Plug #1
  - a. This plug will be placed around the fish
18. Unscrew from fish and trip out of hole 100'
19. Circulate pipe and hole clean
  - a. Utilize foam ball to clean inside of drill-pipe
20. TOOH
21. Run cast iron bridge plug to top of cement (depth where circulation occurred from step #19)
22. TIH open-ended to ~50' above CIBP
23. Pumped balanced plug
  - a. Top of cement will be ~100' into the intermediate casing (10% excess in open hole)
24. TOOH to top of cement
25. Circulate pipe and hole clean
  - a. Utilize foam ball to clean inside of drill-pipe
26. TOOH
27. Set CIBP at 100'
28. Pump cement from top of CIBP to surface
29. N/D BOP.
30. RD rig and move off location.

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Office of Oil and Gas

OCT 23 2019

WV Department of  
Environmental Protection



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

API 47 - 017 - 06881 County Doddridge District West Union  
 Quad Smithburg 7.5' Pad Name Deets Pad Field/Pool Name \_\_\_\_\_  
 Farm name Mary E. Deets and/or Paul A. Smith Well Number Telstar Unit 2H  
 Operator (as registered with the OOG) Antero Resources Corporation  
 Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
 Top hole Northing 4351714m Easting 523689m  
 Landing Point of Curve Northing 4351722.67m Easting 523675.52m  
 Bottom Hole Northing 4354518m Easting 522836m

Elevation (ft) 1376' 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 4/18/2019 Date drilling commenced 5/4/2019 Date drilling ceased 8/13/2019  
 Date completion activities began N/A Date completion activities ceased N/A  
 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 196, 221 Open mine(s) (Y/N) depths No  
 Salt water depth(s) ft 1381, 1843, 1966 Void(s) encountered (Y/N) depths No  
 Coal depth(s) ft 583, 755, 891 Cavern(s) encountered (Y/N) depths No  
 Is coal being mined in area (Y/N) No

Reviewed by:

WR-35  
Rev. 8/23/13

API 47-017 - 06881 Farm name Mary E. Deets and/or Paul A. Smith Well number Telstar Unit 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24"	20"	80'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	370'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2569'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	7122'	New	23#, P-110	N/A	Y
Tubing		2-3/8"			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 <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	204 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	905 sx	15.6	1.18	826	0'	8 Hrs.
Coal							
Intermediate 1	Class A	910 sx	15.6	1.18	1181	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	sx (Lead) sx (Tail)	(Lead), (Tail)	(Lead), (Tail)		-600' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 16872' MD, 7177' TVD (BHL), 7176' (Deepest Point Drilled) Loggers TD (ft) 16872' MD  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6863'

Check all wireline logs run  caliper  density  deviated/directional  induction  
 neutron  resistivity  gamma ray  temperature  sonic

Well cored  Yes  No Conventional Sidewall Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING \_\_\_\_\_

Conductor - 0  
 Surface - 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface  
 Intermediate - 1 above float joint, 1 above float collar, 1 every 4th joint to surface  
 Production - 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED N/A



WR-35  
Rev. 8/23/13

API 47- 017 . 06881 Farm name Mary E. Deets and/or Paul A. Smith Well number Telstar Unit 2H

PRODUCING FORMATION(S)	DEPTHS		
Marcellus	7279' (TOP)	TVD	7064' (TOP) 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 Oil NGL Water GAS MEASURED BY  
N/A mcfpd N/A bpd -- bpd N/A bpd  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP	BOTTOM	TOP	BOTTOM	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> 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 Patterson UTI Drilling Company LLC  
Address 207 Carlton Drive City Eighty Four State PA Zip 15330

Logging Company KLX Energy Services  
Address 3040 Post Oak Boulevard City Houston State TX Zip 77056

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

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

Please insert additional pages as applicable.

Completed by Megan Griffith Telephone 303-357-7223  
Signature \_\_\_\_\_ Title Permitting Agent Date \_\_\_\_\_

API 47-017-06881 Farm Name Mary E. Deets and/or Paul A. Smith Well Number Telstar Unit 2H

**EXHIBIT 3**

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Shaly Sandstone	75	135	75	135
Sandy Shale	135	195	135	195
Shaly Sandstone	195	275	195	275
Sandstone	275	315	275	315
Shaly Sandstone	315	455	315	455
Sandstone	455	535	455	535
Carbonaceous shale	535	655	535	655
Sandstone	655	875	655	875
Shaly sandstone tr coal	875	1,055	875	1,055
Shaly Siltstone	1,055	1,255	1,055	1,255
Sandstone	1,255	1,455	1,255	1,455
Sandy siltstone	1,455	1,535	1,455	1,535
Sandstone	1,535	-25	1,535	N/A
Big Lime	0	0	0	N/A
Fifty Foot Sandstone	0	0	0	N/A
Gordon	0	0	0	N/A
Fifth Sandstone	0	0	0	N/A
Bayard	0	0	0	N/A
Speecheley	0	0	0	N/A
Balltown	0	0	0	N/A
Bradford	0	0	0	N/A
Benson	0	0	0	N/A
Alexander	0	6,907	0	6,847
Sycamore	6,632	6,877	6,600	6,817
Middlesex	6,877	7,081	6,822	6,965
Burkett	7,081	7,131	6,970	6,995
Tully	7,131	7,279	7,000	7,064
Marcellus	7,279	NA	7,064	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.





# ANTERO RESOURCES CORPORATION

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

Slot: Slot #08  
 Well: Teistar Unit 2H  
 Wellbore: Teistar Unit 2H PWB

API: 47-017-06881-0000  
 BHI Job #: 109894768A  
 Rig: H&P 317  
 Duration: 07/07/2019-08/06/2019

Grid System: NAD27 / UTM Zone 17 North, US feet	
True North	Grid North
North Reference: Grid North	
Scale: True distance	
Depth: as in feet	
Created by: dslant on 2016-06-14	
Database: WA_WFL_EastmanUS_Dein	

Gyrodia MS Gyro <17-1/2">(100-398') : 0.08° Inc, 100.00R MD, 100.00R TVD, -0.03R VS

APS EM <12-1/4">(398')(517-2549') : 1.76° Inc, 517.00R MD, 516.98R TVD, -0.50R VS

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
Deets Pad	1718082.640	14270581.000	89°18'52.180"W
Slot	Local E (ft)	Grid East (US ft)	Longitude
Slot #08	-20.31	1718089.210	89°18'51.800"W
H&P 317 (RCB) to Ground level (At Slot Slot #08)	8.67	14270582.640	89°18'51.377"W
Mean Sea Level to Ground level (At Slot Slot #08)			-28.50'
Mean Sea Level to Ground level (At Slot Slot #08)			-137.81'
H&P 317 (RCB) to Mean Sea Level			1401.61'

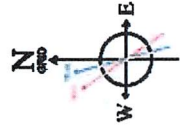
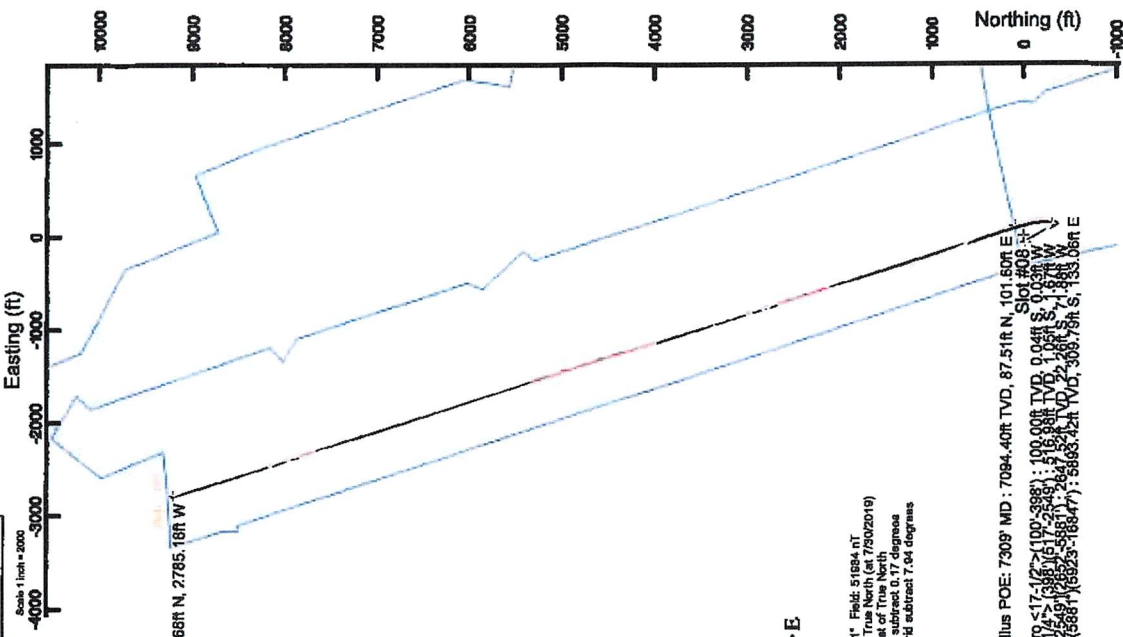
APS EM <8-3/4">(2549')(2652-5881') : 1.08° Inc, 2652.00R MD, 2647.52R TVD, 0.40R VS

Design Comment	TVD (ft)		Local E (ft)		DLS (ft/100ft)		VS (ft)
	MD	Inc (°)	Local E	Local N	Local E	Local N	
The On	2549.00	0.980	326.450	2644.64	-70.71	1.74	-1.30
Prof. To Bottom	2815.00	0.980	326.450	2610.63	-71.29	0.00	-0.20
Drift Out Csg	2715.00	0.000	150.101	2710.51	-21.23	0.00	1.47
Hold Vertical	2784.00	0.000	150.101	2759.51	-20.66	2.00	1.68
KOP 1	2287.00	0.000	150.101	3283.11	-72.37	0.00	1.68
Hold Tangent	3887.00	8.000	150.101	465.08	-59.47	2.00	-25.58
Curve KOP	6202.24	8.000	150.101	8251.10	122.22	0.00	-378.41
Avoid No-Go	6922.89	30.000	0.000	8771.60	-235.00	7.00	-296.70
POE	7300.20	71.128	342.487	7107.00	141.29	8.00	115.62
Landing Pl.	7829.80	80.000	342.487	7151.00	393.15	-18.72	380.57
BH1	16866.74	80.000	342.487	7151.00	9201.95	-2708.32	9817.50

Well Data	
Well	Wellbore
Slot #08	Teistar Unit 2H AWIS
Slot #08	Teistar Unit 2H PWB
Slot #08	Teistar Unit 2H PWB Rm+5.0

BH AT Curve <8-1/2">(5881')(5923-16847') : 6.89° Inc, 5923.00R MD, 5893.42R TVD, -335.47R VS

Marcellus POE: 7309' MD : 68.64° Inc, 7308.00R MD, 7094.40R TVD, 52.89R VS



User specified (PDM) Dip: 66.41° Field: 5 694 NT  
 Magnetic Declination: 7.7 degree West of True North (at 7502019)  
 To correct azimuth from True to Grid subtract 0.17 degrees  
 To correct azimuth from Magnetic to Grid subtract: 7.64 degrees

Marcellus POE: 7309' MD : 7094.40R TVD, 87.51R N, 101.60R E  
 Slot #08  
 Gyrodia MS Gyro <17-1/2">(100-398') : 100.00R TVD, 0.04R S, 0.03R W  
 APS EM <12-1/4">(398')(517-2549') : 516.98R TVD, 1.06R S, 1.87R W  
 APS EM <8-3/4">(2549')(2652-5881') : 2647.52R TVD, 2.26R S, 2.48R W  
 BH AT Curve <8-1/2">(5881')(5923-16847') : 5893.42R TVD, 308.78R S, 133.06R E





# Actual Wellpath Report

Telstar Unit 2H AWP Proj: 16872'

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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot #08
Area	Doddridge Co., WV	Telstar Unit 2H
Field	Doddridge	Telstar Unit 2H AWB
Facility	Deets Pad	

## REPORT SETUP INFORMATION

Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Delaset
Scale	0.999607	Report Generated	8/14/2019 at 10:05:59 PM
Convergence at slot	0.17° East	Database/Source file	WA_MPL_EasternUS_Defn/Telstar_Unit_2H_AWP_Proj_16872.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-29.31	6.57	1718089.21	14276532.69	39°18'51.896"N	80°43'31.377"W
Facility Reference Pt			1718082.64	14276561.99	39°18'52.186"N	80°43'31.460"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

## WELLPATH DATUM

Calculation method	Minimum curvature	H&P 317 (RKB) to Facility Vertical Datum	25.50ft
Horizontal Reference Pt	Slot	H&P 317 (RKB) to Mean Sea Level	1401.50ft
Vertical Reference Pt	H&P 317 (RKB)	H&P 317 (RKB) to Ground Level at Slot (Slot #08)	25.50ft
MD Reference Pt	H&P 317 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	342.49°

47-017-06881P





# Actual Wellpath Report

Telstar Unit 2H AWP Proj: 16872

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47-017-06881P

## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Doddridge Co., WV	Well	Telstar Unit 2H
Field	Doddridge	Wellbore	Telstar Unit 2H AWB
Facility	Deets Pad		

## WELLPATH DATA (203 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 °	D.L.S. ft/100ft	Build Rate ft/100ft	Turn Rate °/100ft	Comments
0.00	0.00	218.060	0.00	0.00	0.00	0.00	1718089.21	14276532.89	39°18'51.896"N	80°43'31.377"W	0.00	0.000	0.00	0.00	0.00	
25.50	0.00	218.050	25.50	0.00	0.00	0.00	1718089.21	14276532.69	39°18'51.896"N	80°43'31.377"W	0.00	0.000	0.00	0.00	0.00	
100.00	0.00	218.050	100.00	-0.03	-0.04	-0.03	1718089.18	14276532.65	39°18'51.896"N	80°43'31.377"W	0.05	218.050	0.11	0.11	-190.54	Gyrodata MS Gyro <17-1/2">(100'-398')
125.00	0.06	207.590	125.00	-0.05	-0.07	-0.05	1718089.16	14276532.62	39°18'51.895"N	80°43'31.378"W	0.08	216.397	0.09	0.09	-0.08	-41.84
150.00	0.11	319.440	150.00	-0.04	-0.06	-0.04	1718089.14	14276532.63	39°18'51.896"N	80°43'31.378"W	0.10	229.584	0.56	0.20	0.20	411.40
175.00	0.19	298.330	175.00	0.01	-0.03	-0.13	1718089.08	14276532.66	39°18'51.896"N	80°43'31.379"W	0.13	258.042	0.34	0.32	-48.44	
200.00	0.09	268.550	200.00	0.05	-0.18	-0.18	1718089.03	14276532.69	39°18'51.896"N	80°43'31.379"W	0.18	269.630	0.41	-0.40	-39.12	
225.00	0.09	334.650	225.00	0.08	0.02	-0.21	1718089.04	14276532.71	39°18'51.897"N	80°43'31.380"W	0.21	276.196	0.28	0.00	184.40	
250.00	0.06	37.200	250.00	0.11	0.05	-0.21	1718089.00	14276532.74	39°18'51.897"N	80°43'31.380"W	0.22	283.609	0.33	-0.12	250.20	
275.00	0.10	74.690	300.00	0.13	0.07	-0.20	1718089.01	14276532.76	39°18'51.897"N	80°43'31.380"W	0.21	289.212	0.09	-0.08	-64.76	
300.00	0.10	47.970	325.00	0.14	0.10	-0.14	1718089.07	14276532.79	39°18'51.897"N	80°43'31.379"W	0.19	295.464	0.32	0.24	204.72	
325.00	0.14	90.370	350.00	0.14	0.12	-0.09	1718089.12	14276532.81	39°18'51.897"N	80°43'31.378"W	0.15	322.453	0.38	0.16	169.80	
375.00	0.05	175.740	375.00	0.12	0.11	-0.06	1718089.15	14276532.80	39°18'51.897"N	80°43'31.378"W	0.12	330.974	0.58	-0.36	341.48	
398.00	1.760	236.540	518.98	-0.50	0.07	-0.07	1718089.14	14276531.64	39°18'51.897"N	80°43'31.398"W	0.10	315.907	0.41	0.35	158.28	
609.00	3.600	228.050	609.98	-2.08	-3.76	-5.00	1718084.22	14276528.93	39°18'51.859"N	80°43'31.441"W	1.97	237.894	1.38	1.37	20.50	APS EIM <12-1/4">(398')(517'-2549')
702.00	5.950	231.740	701.55	-5.00	-8.69	-14.90	1718078.26	14276524.00	39°18'51.810"N	80°43'31.517"W	6.25	233.056	2.04	2.00	-9.23	
794.00	6.140	228.650	793.03	-8.67	-14.90	-18.39	1718070.83	14276517.80	39°18'51.749"N	80°43'31.612"W	13.98	231.558	2.55	2.53	3.97	
889.00	6.680	246.760	887.45	-11.28	-20.44	-27.28	1718061.04	14276512.26	39°18'51.685"N	80°43'31.725"W	23.67	230.980	0.41	0.21	-3.36	
984.00	5.370	238.170	981.93	-12.93	-24.98	-38.14	1718053.09	14276507.74	39°18'51.650"N	80°43'31.838"W	34.09	233.166	2.19	0.57	19.06	
1078.00	5.610	238.830	1075.49	-15.10	-29.66	-43.81	1718045.42	14276503.04	39°18'51.604"N	80°43'31.838"W	43.92	235.367	1.67	-1.38	-9.04	
1173.00	5.340	247.360	1170.06	-16.60	-33.76	-51.86	1718037.37	14276498.94	39°18'51.564"N	80°43'32.038"W	52.90	235.901	0.26	0.26	0.70	
1268.00	4.540	241.910	1264.71	-17.68	-37.24	-59.26	1718029.98	14276495.47	39°18'51.530"N	80°43'32.132"W	61.88	236.934	0.90	-0.28	8.98	
1363.00	2.330	224.690	1359.53	-19.27	-40.38	-63.93	1718025.38	14276482.33	39°18'51.489"N	80°43'32.192"W	69.98	237.856	0.98	-0.84	-5.74	
1458.00	0.970	128.820	1454.51	-20.85	-42.27	-64.87	1718024.56	14276480.44	39°18'51.480"N	80°43'32.201"W	75.92	237.724	2.54	-2.38	-18.13	
1553.00	1.440	52.050	1549.49	-21.11	-42.05	-63.11	1718026.12	14276480.66	39°18'51.482"N	80°43'32.182"W	75.84	236.327	1.64	0.49	-81.86	
1648.00	2.980	24.040	1644.42	-18.85	-39.06	-61.17	1718028.07	14276483.65	39°18'51.512"N	80°43'32.157"W	72.57	237.439	1.93	1.62	-29.48	
1742.00	3.270	7.560	1738.28	-14.59	-34.17	-63.82	1718029.42	14276488.53	39°18'51.560"N	80°43'32.139"W	68.89	240.264	1.00	0.31	-17.53	
1837.00	3.420	339.400	1833.12	-9.30	-28.83	-60.46	1718028.78	14276503.97	39°18'51.613"N	80°43'32.147"W	66.98	244.505	1.72	0.16	-29.84	





# Actual Wellpath Report

Telstar Unit 2H AWP Proj: 16872  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Doddridge Co., WV	Well	Telstar Unit 2H
Field	Doddridge	Wellbore	Telstar Unit 2H AWB
Facility	Deets Pad		

## WELLPATH DATA (203 stations)

ID	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 Dif [ft]	DLS [F100ft]	Build Rate [F100ft]	Turn Rate [°/100ft]	Comments
1932.00	4.040	319.950	1927.93	-3.38	-23.62	-63.61	1718025.63	14276509.08	39°18'51.664"N	80°43'32.187"W	67.85	248.632	1.47	0.65	-20.47	
2026.00	3.360	315.230	2021.73	2.12	-18.13	-67.68	1718021.56	14276513.57	39°18'51.709"N	80°43'32.239"W	70.33	254.220	0.79	-0.72	-5.02	
2121.00	1.140	295.250	2116.65	6.24	-16.75	-70.50	1718018.74	14276515.95	39°18'51.793"N	80°43'32.275"W	72.46	256.637	2.44	-2.34	-21.03	
2216.00	1.140	174.230	2211.64	4.96	-17.28	-71.26	1718017.98	14276515.41	39°18'51.727"N	80°43'32.284"W	73.32	256.368	2.09	0.00	-127.39	
2311.00	2.250	161.690	2306.60	2.17	-18.98	-70.57	1718018.68	14276512.70	39°18'51.701"N	80°43'32.278"W	73.35	254.183	1.23	1.17	-13.20	
2405.00	1.380	178.810	2400.55	-0.76	-24.03	-70.31	1718018.93	14276509.82	39°18'51.672"N	80°43'32.268"W	73.62	251.895	1.08	-0.93	18.21	
2500.00	0.440	288.950	2495.54	-1.78	-24.03	-70.31	1718018.93	14276509.82	39°18'51.664"N	80°43'32.273"W	74.30	251.133	1.53	-0.98	94.88	
2549.00	0.980	329.430	2544.84	-1.30	-23.67	-70.71	1718018.52	14276509.03	39°18'51.664"N	80°43'32.273"W	74.57	251.493	1.74	1.10	123.43	
2652.00	1.090	312.240	2647.52	0.40	-22.26	-71.88	1718017.36	14276510.44	39°18'51.678"N	80°43'32.292"W	75.25	252.794	0.31	0.10	-16.69	APS EM <-8-3/4> (25-48)(2652-5881)
2748.00	1.360	182.680	2741.51	0.20	-22.75	-72.78	1718016.46	14276509.95	39°18'51.673"N	80°43'32.309"W	76.25	252.640	2.25	0.30	-127.18	
2840.00	1.540	187.010	2835.48	-1.91	-25.09	-73.18	1718016.06	14276507.61	39°18'51.650"N	80°43'32.309"W	77.36	251.073	0.24	0.18	-6.03	
2935.00	1.240	173.930	2930.45	-4.08	-27.38	-73.23	1718016.01	14276505.32	39°18'51.628"N	80°43'32.310"W	78.18	248.497	0.46	-0.32	-13.77	
3030.00	0.850	176.800	3025.43	-5.99	-29.29	-72.92	1718016.32	14276503.42	39°18'51.609"N	80°43'32.306"W	78.58	248.117	0.22	-0.16	-7.26	
3127.00	0.800	206.820	3122.42	-7.61	-30.90	-72.67	1718016.57	14276501.80	39°18'51.583"N	80°43'32.303"W	78.96	246.961	0.30	-0.25	9.85	
3222.00	0.800	206.820	3217.41	-8.65	-32.05	-72.85	1718016.38	14276500.65	39°18'51.581"N	80°43'32.305"W	78.59	246.251	0.47	-0.26	31.62	
3317.00	3.830	166.990	3312.33	-12.17	-35.59	-72.35	1718016.88	14276497.12	39°18'51.546"N	80°43'32.299"W	80.63	243.809	3.57	3.40	-41.72	
3413.00	6.320	152.050	3407.95	-20.56	-43.38	-69.16	1718020.08	14276489.33	39°18'51.469"N	80°43'32.259"W	81.64	237.900	2.92	2.59	-15.56	
3507.00	6.760	147.610	3501.34	-31.00	-52.62	-63.77	1718025.47	14276480.09	39°18'51.378"N	80°43'32.190"W	82.68	230.469	0.71	0.47	-4.72	
3602.00	7.030	133.680	3595.66	-41.50	-61.36	-56.57	1718032.67	14276471.35	39°18'51.291"N	80°43'32.006"W	83.46	222.672	1.78	0.28	-14.66	
3697.00	6.760	145.400	3689.98	-51.94	-68.98	-49.18	1718040.04	14276462.74	39°18'51.206"N	80°43'32.006"W	85.54	215.103	1.51	-0.28	12.34	
3792.00	8.270	161.550	3784.17	-64.11	-81.06	-43.85	1718045.38	14276451.66	39°18'51.096"N	80°43'31.938"W	92.16	208.410	2.72	1.59	17.00	
3887.00	9.090	161.070	3878.08	-76.45	-94.64	-38.25	1718049.97	14276438.08	39°18'50.962"N	80°43'31.880"W	102.46	202.526	0.87	0.86	-0.51	
3982.00	8.870	156.270	3971.92	-83.23	-108.45	-33.87	1718055.35	14276424.29	39°18'50.825"N	80°43'31.812"W	113.61	197.346	0.82	-0.23	-5.05	
4076.00	8.280	152.090	4064.87	-107.09	-121.06	-27.79	1718061.44	14276411.67	39°18'50.700"N	80°43'31.735"W	124.21	192.926	0.91	-0.63	-4.46	
4266.00	6.840	138.350	4253.36	-129.82	-140.64	-21.32	1718067.90	14276399.11	39°18'50.594"N	80°43'31.653"W	133.47	189.191	1.78	-1.48	-7.53	
4361.00	6.670	144.940	4159.04	-148.24	-131.76	-14.30	1718074.92	14276387.35	39°18'50.506"N	80°43'31.564"W	141.36	185.804	0.83	-0.03	-6.94	
4456.00	9.970	147.970	4441.25	-157.17	-151.40	-7.60	1718081.61	14276381.35	39°18'50.400"N	80°43'31.480"W	151.59	182.874	3.12	1.93	18.37	
4551.00	9.210	140.650	4534.92	-172.19	-177.75	8.88	1718098.09	14276367.85	39°18'50.266"N	80°43'31.387"W	164.90	180.105	1.91	1.37	-8.24	
4645.00	8.600	150.830	4627.80	-168.06	-189.71	17.08	1718108.28	14276343.06	39°18'50.020"N	80°43'31.167"W	177.98	177.140	1.51	-0.80	-7.71	
											190.48	174.857	1.79	-0.65	10.83	

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# Actual Wellpath Report

Teistar Unit 2H AWP Proj: 16872  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Doddridge Co., WV	Well	Teistar Unit 2H
Field	Doddridge	Wellbore	Teistar Unit 2H AWB
Facility	Deets Pad		

## WELLPATH DATA (203 stations) † = interpolated/extrapolated station

Mid IRI	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sec'd (ft)	North (ft)	East (ft)	Grid East (ft)	Grid North (ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dip (°)	DLS (ft/100ft)	Build Rate (ft/100ft)	Turn Rate (ft/100ft)	Comments
4740.00	7.960	156.990	4721.81	-189.56	-201.97	23.11	1718112.31	14276330.80	39°18'48.899"N	80°43'31.091"W	203.28	173.472	1.15	-0.67	6.48	
4835.00	7.460	151.890	4815.95	-212.17	-213.46	28.59	1718117.79	14276319.31	39°18'48.785"N	80°43'31.022"W	215.37	172.372	0.89	-0.53	-5.38	
4930.00	6.710	148.150	4910.22	-223.61	-223.61	34.42	1718123.62	14276308.17	39°18'48.685"N	80°43'30.948"W	226.25	171.249	0.93	-0.79	-3.93	
5025.00	6.390	140.140	5004.61	-233.88	-232.39	40.74	1718129.93	14276300.40	39°18'48.598"N	80°43'30.868"W	235.93	170.056	1.02	-0.34	-8.43	
5120.00	8.310	127.970	5098.03	-243.97	-239.88	48.24	1718137.44	14276283.13	39°18'48.526"N	80°43'30.772"W	244.46	168.818	1.42	-0.08	-12.81	
5215.00	7.590	139.790	5183.33	-253.16	-247.66	56.41	1718145.60	14276285.13	39°18'48.447"N	80°43'30.669"W	254.00	167.168	2.01	1.35	12.44	
5309.00	11.090	150.370	5286.08	-267.73	-260.26	64.89	1718154.08	14276272.53	39°18'48.322"N	80°43'30.561"W	268.23	166.000	4.13	3.72	11.26	
5404.00	10.890	141.710	5379.34	-285.05	-275.25	74.97	1718164.16	14276257.55	39°18'48.173"N	80°43'30.434"W	288.24	164.764	1.75	-0.21	-9.12	
5499.00	8.920	137.740	5472.92	-300.13	-287.75	85.49	1718174.66	14276245.08	39°18'48.049"N	80°43'30.301"W	300.18	163.454	2.19	-2.07	-4.16	
5596.00	8.480	125.610	5568.81	-312.69	-297.48	96.36	1718185.53	14276235.33	39°18'48.953"N	80°43'30.163"W	312.69	162.052	1.94	-0.45	-12.51	
5691.00	7.350	114.470	5662.91	-322.35	-304.07	107.58	1718196.75	14276228.74	39°18'48.887"N	80°43'30.020"W	322.54	160.516	2.00	-1.19	-11.73	
5786.00	6.450	101.990	5757.23	-329.05	-307.70	116.34	1718207.50	14276225.11	39°18'48.851"N	80°43'29.883"W	329.67	158.964	1.84	-0.95	-13.14	
5881.00	5.900	95.130	5851.68	-333.55	-309.24	128.42	1718217.58	14276223.03	39°18'48.836"N	80°43'29.755"W	334.85	157.448	0.97	-0.58	-7.22	
5923.00	6.890	97.980	5993.42	-335.47	-309.79	133.06	1718222.22	14276223.03	39°18'48.830"N	80°43'29.696"W	337.16	156.755	2.47	2.36	6.79BH AT Curve <-8-1/2"> (5881)(5923-16947)	
6009.00	5.000	147.680	6079.00	-341.32	-313.67	140.18	1718229.94	14276219.14	39°18'48.792"N	80°43'29.605"W	343.57	155.920	6.13	-2.26	57.74	
6104.00	5.620	248.500	6073.76	-345.65	-318.98	138.06	1718227.22	14276213.93	39°18'48.740"N	80°43'29.633"W	347.49	156.589	8.62	0.65	106.15	
6199.00	8.190	239.530	6168.06	-347.49	-324.02	127.90	1718217.06	14276208.80	39°18'48.690"N	80°43'29.762"W	348.35	158.459	2.93	2.71	-8.44	
6294.00	8.660	183.270	6262.19	-355.71	-334.61	121.85	1718210.81	14276198.21	39°18'48.585"N	80°43'29.842"W	356.04	160.020	8.36	0.49	-59.22	
6389.00	6.530	125.370	6356.47	-366.72	-344.89	125.65	1718214.82	14276187.93	39°18'48.483"N	80°43'29.792"W	367.07	159.982	7.97	-2.24	-60.95	
6483.00	5.070	51.900	6450.10	-369.52	-345.42	133.29	1718222.45	14276181.40	39°18'48.478"N	80°43'29.695"W	370.25	158.889	7.48	-1.55	-78.16	
6578.00	10.280	21.860	6544.25	-361.47	-334.94	139.73	1718228.69	14276197.88	39°18'48.581"N	80°43'29.612"W	362.92	157.355	6.76	5.48	-31.83	
6673.00	17.160	15.190	6636.49	-343.08	-313.51	146.54	1718235.69	14276219.30	39°18'48.793"N	80°43'29.525"W	346.07	154.948	7.41	7.24	-6.81	
6768.00	23.990	10.270	6725.39	-314.16	-280.95	153.66	1718242.81	14276251.86	39°18'49.115"N	80°43'29.433"W	320.22	151.323	7.41	7.19	-5.18	
6863.00	30.820	7.570	6809.68	-274.98	-237.77	160.32	1718249.47	14276295.02	39°18'49.541"N	80°43'29.346"W	286.77	146.008	7.31	7.19	-2.84	
6907.00†	34.833	4.308	6848.65	-253.10	-214.95	162.75	1718261.90	14276318.72	39°18'49.776"N	80°43'29.315"W	268.90	142.763	9.98	9.12	-7.41†Middlesex 6907 MD	
6910.00	35.110	4.110	6849.11	-251.50	-212.34	162.88	1718252.02	14276320.44	39°18'49.792"N	80°43'29.313"W	267.61	142.508	9.96	9.22	-6.61	
6957.00	38.060	358.010	6886.85	-224.96	-184.36	163.34	1718252.49	14276348.40	39°18'50.069"N	80°43'29.306"W	246.31	138.459	9.96	6.28	-12.98	
7004.00	42.220	352.180	6922.79	-195.41	-154.21	160.69	1718249.84	14276378.54	39°18'50.367"N	80°43'28.339"W	222.72	133.822	11.92	8.85	-12.40	
7052.00	46.690	347.840	6957.05	-162.10	-121.14	154.81	1718243.96	14276411.60	39°18'50.684"N	80°43'28.412"W	196.57	128.043	11.26	9.31	-9.04	
7099.00	51.073	346.380	6987.85	-126.82	-86.64	146.90	1718236.05	14276446.98	39°18'51.035"N	80°43'28.511"W	170.55	120.531	9.61	9.32	-3.11	

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# Actual Wellpath Report

Telstar Unit 2H AWP Proj: 16872'  
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REFERENCE WELLPATH IDENTIFICATION		Slot	ISlot #08
Operator	ANTERO RESOURCES CORPORATION	Well	Telstar Unit 2H
Area	Doddridge Co., WY	Wellbore	Telstar Unit 2H AWB
Field	Doddridge		
Facility	Deets Pad		

WELLPATH DATA (203 stations) † = interpolated/extrapolated station																
ID	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/100ft	ft/100ft	ft/100ft	
7111.00	51.820	346.385	6995.43	-117.46	-77.52	144.69	1718233.85	14276455.20	39°18'51.125"N	80°43'28.539"W	164.15	118.180	6.25	6.25	0.04	Burkett: 7111' MD
7147.00	54.070	346.400	7017.12	-88.80	-49.60	137.93	1718227.09	14276483.11	39°18'51.402"N	80°43'29.624"W	146.58	109.777	6.25	6.25	0.04	
7181.00	55.306	346.385	7025.22	-77.40	-38.49	135.25	1718224.40	14276484.21	39°18'51.511"N	80°43'28.658"W	140.62	105.887	8.83	8.83	-0.11	Tully: 7161' MD
7194.00	58.220	346.350	7043.30	-49.86	-11.67	128.74	1718217.90	14276521.02	39°18'51.777"N	80°43'29.740"W	129.27	95.180	8.83	8.83	-0.10	
7242.00	32.610	344.890	7068.98	-8.20	28.75	118.37	1718207.53	14276561.43	39°18'52.177"N	80°43'29.870"W	121.81	76.348	9.52	9.15	-3.04	
7289.00	67.280	343.730	7086.89	34.35	69.73	106.85	1718196.01	14276602.39	39°18'52.582"N	80°43'30.015"W	127.58	56.873	10.18	9.94	-2.47	
7308.00	68.642	343.418	7094.40	52.88	87.51	101.60	1718190.77	14276620.16	39°18'52.706"N	80°43'30.081"W	134.09	49.264	6.96	6.81	-1.53	Marcellus POE: 7309' MD
7337.00	70.550	342.990	7104.16	79.12	112.63	94.02	1718183.19	14276645.27	39°18'53.006"N	80°43'30.176"W	146.71	39.855	6.96	6.81	-1.53	
7384.00	74.650	343.890	7118.21	123.95	155.61	81.24	1718170.42	14276688.24	39°18'53.432"N	80°43'30.337"W	175.54	27.569	8.91	8.72	1.91	
7431.00	77.340	343.530	7129.59	169.54	199.38	68.45	1718157.64	14276731.99	39°18'53.865"N	80°43'30.498"W	210.80	18.949	5.77	5.72	-0.77	
7478.00	81.170	342.660	7138.35	215.71	243.55	55.03	1718144.22	14276776.14	39°18'54.301"N	80°43'30.667"W	249.69	12.732	8.35	8.15	-1.85	
7526.00	85.500	341.370	7143.92	263.37	288.88	40.31	1718129.50	14276821.46	39°18'54.750"N	80°43'30.853"W	291.68	7.943	9.41	9.02	-2.68	
7573.00	87.780	342.230	7146.67	310.28	333.45	25.65	1718114.85	14276866.01	39°18'55.191"N	80°43'31.038"W	334.44	4.399	5.18	4.85	1.83	
7621.00	90.060	342.320	7147.58	358.27	379.16	11.04	1718100.25	14276891.70	39°18'55.643"N	80°43'31.222"W	379.32	1.869	4.75	4.75	0.19	
7716.00	90.090	338.840	7147.45	453.23	469.02	-19.78	1718068.46	14277001.53	39°18'56.532"N	80°43'31.610"W	469.44	357.588	2.61	0.03	-2.61	
7811.00	89.760	334.470	7147.58	547.79	556.54	-56.63	1718032.61	14277069.01	39°18'57.398"N	80°43'32.078"W	559.41	354.190	5.66	-0.38	-5.65	
7906.00	89.880	333.220	7147.89	641.70	641.81	-98.50	1717990.75	14277174.24	39°18'58.242"N	80°43'32.605"W	649.32	351.275	1.32	0.14	-1.32	
8001.00	89.630	338.990	7148.30	736.07	728.63	-136.96	1717952.30	14277261.03	39°18'59.102"N	80°43'33.092"W	741.39	349.354	6.08	-0.26	6.07	
8095.00	89.720	340.500	7148.83	829.98	816.81	-189.51	1717918.77	14277349.18	39°18'59.974"N	80°43'33.502"W	834.21	348.276	1.61	0.10	1.61	
8190.00	89.200	338.930	7149.73	924.84	905.91	-202.44	1717896.85	14277438.24	39°19'00.856"N	80°43'33.918"W	928.25	347.403	1.74	-0.55	-1.65	
8285.00	89.970	341.500	7150.41	1019.76	985.29	-234.59	1717854.71	14277527.59	39°19'01.740"N	80°43'34.323"W	1022.57	346.737	2.82	0.81	2.71	
8380.00	90.400	342.990	7150.11	1114.75	1085.76	-263.56	1717825.75	14277618.03	39°19'02.635"N	80°43'34.688"W	1117.30	346.356	1.63	0.45	1.57	
8475.00	90.090	342.840	7149.70	1209.75	1176.57	-291.47	1717797.85	14277708.80	39°19'03.534"N	80°43'35.040"W	1212.14	346.086	0.36	-0.33	-0.16	
8570.00	89.480	343.410	7150.06	1304.74	1267.48	-319.05	1717770.29	14277793.67	39°19'04.433"N	80°43'35.387"W	1307.02	345.871	0.88	-0.64	0.60	
8665.00	89.910	343.480	7150.66	1369.73	1368.54	-348.11	1717743.24	14277880.70	39°19'05.334"N	80°43'35.728"W	1401.94	345.707	0.46	0.46	0.08	
8759.00	88.950	342.540	7151.50	1493.72	1448.44	-373.56	1717715.79	14277960.55	39°19'06.223"N	80°43'36.074"W	1495.83	345.538	1.44	-1.02	-1.01	
8854.00	89.420	343.760	7152.85	1588.70	1539.34	-401.11	1717688.26	14278071.43	39°19'07.122"N	80°43'36.421"W	1590.74	345.395	1.37	0.49	1.27	
8949.00	89.750	342.670	7153.54	1683.69	1630.28	-428.55	1717660.83	14278162.34	39°19'08.022"N	80°43'36.767"W	1685.67	345.272	1.19	0.35	-1.14	
9044.00	90.430	344.100	7153.39	1778.67	1721.32	-455.71	1717633.68	14278253.33	39°19'08.925"N	80°43'37.109"W	1780.62	345.171	1.67	0.72	1.51	
9139.00	89.350	343.460	7153.57	1873.65	1812.54	-482.25	1717607.15	14278344.51	39°19'09.825"N	80°43'37.443"W	1875.58	345.101	1.32	-1.14	-0.67	





# Actual Wellpath Report

Telstar Unit 2H AWP Proj: 16872  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #08
Area	Doddridge Co., WV	Well	Telstar Unit 2H
Field	Doddridge	Wellbore	Telstar Unit 2H AWB
Facility	Deets Pad		

## WELLPATH DATA (203 stations)

ID	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/100ft	ft/100ft	ft/100ft	
9234.00	90.150	344.940	7153.99	1988.60	1903.94	-508.11	1717581.30	14278435.88	39°19'10.728"N	80°43'37.769"W	1970.58	345.058	1.77	0.84	1.56	
9328.00	89.910	344.470	7153.94	2063.53	1895.58	-533.17	1717556.25	14278527.48	39°19'11.638"N	80°43'38.084"W	2065.58	345.041	0.56	-0.25	-0.48	
9424.00	89.970	344.700	7154.04	2158.46	2087.16	-558.42	1717531.01	14278619.03	39°19'12.541"N	80°43'38.402"W	2160.57	345.021	0.25	0.06	0.24	
9518.00	89.540	343.490	7154.44	2252.43	2177.56	-584.18	1717505.26	14278709.39	39°19'13.436"N	80°43'38.726"W	2254.56	344.983	1.37	-0.46	-1.28	
9613.00	89.750	342.760	7155.03	2347.42	2268.47	-611.76	1717477.69	14278800.26	39°19'14.339"N	80°43'39.073"W	2349.51	344.908	0.80	0.22	-0.77	
9708.00	90.030	342.950	7155.21	2442.41	2359.24	-639.76	1717449.70	14278891.00	39°19'15.233"N	80°43'39.426"W	2444.45	344.828	0.36	0.28	0.20	
9803.00	89.350	342.640	7155.72	2537.41	2449.99	-667.86	1717421.61	14278981.71	39°19'16.131"N	80°43'39.780"W	2539.39	344.752	0.79	-0.72	-0.33	
9898.00	90.090	342.370	7156.19	2632.41	2540.59	-696.42	1717393.06	14279072.28	39°19'17.027"N	80°43'40.140"W	2634.32	344.671	0.83	0.78	-0.28	
9993.00	89.940	345.080	7156.16	2727.38	2631.78	-723.04	1717365.45	14279163.43	39°19'17.929"N	80°43'40.475"W	2729.30	344.658	2.86	-0.16	2.85	
10087.00	88.970	343.050	7156.56	2821.34	2722.16	-749.85	1717340.86	14279253.78	39°19'18.823"N	80°43'40.800"W	2823.29	344.619	2.20	-0.39	-2.16	
10182.00	89.260	342.160	7157.53	2916.33	2812.81	-777.25	1717312.27	14279344.39	39°19'19.720"N	80°43'41.158"W	2918.22	344.553	0.98	-0.33	-0.94	
10277.00	89.910	342.540	7158.22	3011.33	2903.34	-805.05	1717283.48	14279434.88	39°19'20.618"N	80°43'41.521"W	3013.15	344.484	0.79	0.68	0.40	
10372.00	90.120	343.630	7158.20	3106.32	2994.22	-833.69	1717255.85	14279525.73	39°19'21.515"N	80°43'41.870"W	3108.12	344.441	1.17	0.22	1.15	
10467.00	89.630	342.870	7158.40	3201.31	3085.19	-861.07	1717228.48	14279616.66	39°19'22.415"N	80°43'42.214"W	3203.10	344.406	0.95	-0.52	-0.80	
10562.00	89.540	342.640	7159.09	3296.31	3175.92	-889.23	1717200.33	14279707.36	39°19'23.312"N	80°43'42.569"W	3298.08	344.358	0.26	-0.09	-0.24	
10657.00	89.750	341.780	7159.68	3391.30	3266.37	-918.28	1717171.32	14279797.77	39°19'24.207"N	80°43'42.935"W	3392.99	344.298	0.93	0.22	-0.91	
10751.00	89.230	344.100	7160.52	3485.28	3356.23	-945.93	1717143.75	14279887.59	39°19'25.096"N	80°43'43.283"W	3486.96	344.261	2.53	-0.55	2.47	
10846.00	89.380	344.350	7161.67	3580.24	3447.64	-971.66	1717117.94	14279978.97	39°19'26.000"N	80°43'43.608"W	3581.95	344.260	0.31	0.16	0.28	
10941.00	89.480	344.140	7162.61	3675.19	3539.07	-997.45	1717092.15	14280070.36	39°19'26.905"N	80°43'43.932"W	3676.94	344.260	0.24	0.11	-0.22	
11036.00	88.590	342.800	7164.22	3770.18	3630.13	-1024.47	1717065.14	14280161.38	39°19'27.805"N	80°43'44.273"W	3771.92	344.240	1.70	-0.95	-1.41	
11131.00	90.800	344.480	7164.74	3865.13	3721.27	-1051.23	1717038.40	14280252.49	39°19'28.707"N	80°43'44.610"W	3866.90	344.225	2.83	2.34	1.77	
11226.00	89.970	339.650	7164.10	3960.10	3811.62	-1080.47	1717009.16	14280342.81	39°19'29.601"N	80°43'44.979"W	3961.81	344.174	5.16	-0.87	-5.08	
11321.00	89.720	339.550	7164.36	4054.97	3900.67	-1113.59	1716976.06	14280431.82	39°19'30.482"N	80°43'45.397"W	4056.51	344.067	0.28	-0.26	-0.11	
11415.00	90.370	338.930	7164.28	4148.82	3988.56	-1148.91	1716942.76	14280519.68	39°19'31.352"N	80°43'45.817"W	4150.18	343.957	0.96	0.69	-0.66	
11510.00	89.940	340.980	7164.02	4243.72	4077.80	-1179.47	1716910.21	14280608.88	39°19'32.235"N	80°43'46.228"W	4244.95	343.868	2.20	-0.45	2.16	
11605.00	90.030	342.580	7164.05	4338.71	4168.04	-1209.17	1716880.52	14280699.08	39°19'33.127"N	80°43'46.603"W	4339.89	343.822	1.69	0.08	1.68	
11700.00	90.430	341.300	7163.67	4433.71	4258.35	-1238.62	1716851.08	14280789.36	39°19'34.021"N	80°43'46.974"W	4434.83	343.782	1.41	0.42	-1.35	
11795.00	90.180	342.010	7163.16	4528.69	4348.52	-1268.52	1716821.19	14280879.50	39°19'34.913"N	80°43'47.351"W	4529.77	343.737	0.79	-0.26	0.76	
11890.00	89.910	342.080	7163.09	4622.69	4437.95	-1298.50	1716792.23	14280968.88	39°19'35.798"N	80°43'47.716"W	4623.73	343.703	0.30	-0.29	0.07	
11984.00	90.920	343.450	7162.40	4717.65	4528.68	-1328.63	1716764.10	14281059.36	39°19'36.695"N	80°43'48.071"W	4718.71	343.684	1.80	1.06	1.45	

47-017-06881P



Telstar Unit 2H - 1500' from wellpath - ALL EXISTING DRILLED VERTICAL WELLS (active, plugged, abandoned)

(ft) GIS related	Formation Category (GIS calculated)	Formation at TD (from IHS)	Operator	Well Name	Status - WVDEP	Year Completed - IHS	Status - Seneca	Status - IHS
950	Shallower than 3000' above Marcellus	GREENBRIER /LM/	BRAZZELL CARL L	1	Plugged	1966-12-03	PLUGGED OIL	GAS PRODUCER
967	Shallower than 3000' above Marcellus	BIG INJUN /SD/	DIVERSIFIED RESOURCES INCORPORATED	1	Active Well	1961-01-01	VERTICAL GAS	GAS PRODUCER
977	Shallower than 3000' above Marcellus	BIG INJUN /SD/	DIVERSIFIED RESOURCES INCORPORATED	2	Active Well	1961-02-01	VERTICAL GAS	GAS PRODUCER
998	Shallower than 3000' above Marcellus	BIG INJUN /SD/	MARSHALL OIL & GAS CORPORATION	JOHNSON WILLIAMS 2	Active Well	1960-12-01	VERTICAL GAS	DRY & ABANDONED
999	Shallower than 3000' above Marcellus	MISSISSIPPIAN	MURVIN & MEIER OIL COMPANY	2	Active Well	1976-10-12	VERTICAL GAS	GAS PRODUCER
000	Shallower than 3000' above Marcellus	MISSISSIPPIAN	MURVIN & MEIER OIL COMPANY	1	Active Well	1976-11-01	VERTICAL GAS	GAS PRODUCER
003	Shallower than 3000' above Marcellus	BIG INJUN /SD/	POWER CLARENCE MRS	1	Abandoned Well	1962-10-01	PLUGGED GAS	GAS PRODUCER
030	Shallower than 3000' above Marcellus	BIG INJUN /SD/	DIVERSIFIED RESOURCES INCORPORATED	T G & M B BARKER 1	Active Well	1963-12-01	VERTICAL GAS	GAS PRODUCER
059	Shallower than 3000' above Marcellus	BIG INJUN /SD/	PRIOR FERRELL L	EARL & LETTIE WILLIAMS 1	Plugged	1960-09-01	PLUGGED GAS	GAS PRODUCER
106	Shallower than 3000' above Marcellus	BIG INJUN /SD/	PATCHWORK OIL & GAS LLC	3	Active Well	1961-08-01	VERTICAL GAS	GAS PRODUCER
111	Shallower than 3000' above Marcellus	BIG INJUN /SD/	PATCHWORK OIL & GAS LLC	1	Active Well	1960-09-01	VERTICAL GAS	GAS PRODUCER
147	Shallower than 3000' above Marcellus	BIG INJUN /SD/	P G OIL & GAS INCORPORATED	1	Active Well	1960-06-01	VERTICAL GAS	D&A-G
445	Shallower than 3000' above Marcellus	CHEMUNG	CHARITY GAS INCORPORATED	4956	Abandoned Well	1911-04-20	VERTICAL UNKNOWN	GAS PRODUCER
510	Shallower than 3000' above Marcellus	HAMPSHIRE	DIVERSIFIED RESOURCES INCORPORATED	0232	Active Well	1901-03-13	HOUSE GAS	GAS PRODUCER
526	Shallower than 3000' above Marcellus	GORDON	PATCHWORK OIL & GAS LLC	5	Active Well	1964-02-01	VERTICAL GAS	GAS PRODUCER
533	Shallower than 3000' above Marcellus	GORDON	MARSHALL OIL & GAS CORPORATION	1	Abandoned Well	1952-06-01	VERTICAL GAS	GAS PRODUCER
551	Shallower than 3000' above Marcellus	GORDON	DIVERSIFIED RESOURCES INCORPORATED	7060	Active Well	1906-10-25	VERTICAL GAS	GAS PRODUCER
560	Shallower than 3000' above Marcellus	CHEMUNG	GRIBBLE W D	REMINOTON B WHITE HRS 3	Abandoned Well	1930-02-15	VERTICAL GAS AND OIL	GAS PRODUCER
582	Shallower than 3000' above Marcellus	HAMPSHIRE	DIVERSIFIED RESOURCES INCORPORATED	7061	Active Well	1911-12-24	VERTICAL GAS	ABD-OW
770	Shallower than 3000' above Marcellus	GORDON	EMPIRE OIL & GAS INCORPORATED	1	Abandoned Well	1949-08-01	VERTICAL GAS	GAS PRODUCER
816	Shallower than 3000' above Marcellus	DEVONIAN /SH/	PATCHWORK OIL & GAS LLC	E. DAVISSON 9	Abandoned Well	2006-01-13	VERTICAL GAS	GAS PRODUCER
886	Shallower than 1500' above Marcellus	DEVONIAN /SD/	DAC CORP	SCRIPPS ET AL 5	Plugged	1996-08-19	VERTICAL UNKNOWN	GAS PRODUCER
145	Benson/Alexander	DEVONIAN /SD/	DIVERSIFIED RESOURCES INCORPORATED	SCRIPPS ETAL 6	Active Well	1997-06-22	VERTICAL GAS AND OIL	GAS PRODUCER
199	Benson/Alexander	BENSON /SD/	DIVERSIFIED RESOURCES INCORPORATED	KNIGHT 5	Active Well	1996-09-02	VERTICAL GAS	ABD-GW
170	Benson/Alexander	ALEXANDER	KEY OIL COMPANY	COWMAN 4	Active Well	2011-07-19	VERTICAL GAS AND OIL	GAS PRODUCER

> 1640 SSTVD  
Possible Gordon  
Shallow wells no concern

1640 SSTVD of bottom of Fish

WLS 100H1	Buried Rate %/1000ft	Turn Rate %/1000ft	Comments
2.00	-0.39	-1.96	
1.19	0.17	1.18	
1.90	-0.58	1.81	
3.02	-0.26	-3.01	
0.69	0.45	0.52	
0.51	-0.20	-0.47	
0.92	0.62	0.68	
2.25	-1.98	-1.08	
1.24	1.20	-0.31	
0.67	0.23	0.63	
1.69	0.22	1.67	
0.79	0.03	-0.79	
0.30	0.20	0.22	
2.00	-1.34	-1.48	
0.65	0.27	0.93	
1.21	0.97	-0.73	
0.48	-0.48	0.00	
1.80	-1.53	0.96	
1.47	1.20	-0.85	
0.28	-0.03	-0.27	
0.41	0.19	0.36	
0.52	-0.48	0.18	
0.86	-0.09	-0.85	
0.34	0.19	0.28	
0.30	0.03	0.29	
0.33	0.33	-0.02	
0.26	0.20	0.17	
1.16	0.03	1.16	
2.02	0.13	2.02	

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# Actual Wellpath Report

Teistar Unit 2H AWP Proj: 16872'  
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REFERENCE WELLPATH IDENTIFICATION		Slot	ISlot #08
Operator	ANTERO RESOURCES CORPORATION	Well	Teistar Unit 2H
Area	Doddridge Co., WV	Wellbore	Teistar Unit 2H AWB
Field	Doddridge		
Facility	Deets Pad		

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
14924.00	89.630	342.820	7168.97	7657.30	7329.13	-2218.42	1715870.67	14283953.93	39°20'04.400"N	80°43'59.339"W	7657.81	343.153	2.58	-0.42	-2.55	
15019.00	89.850	343.240	7169.40	7522.29	7420.00	-2247.15	1715842.95	14283949.75	39°20'05.299"N	80°43'59.689"W	7752.81	343.151	0.50	0.23	0.44	
15114.00	89.690	344.220	7169.78	7847.27	7511.19	-2273.78	1715816.35	14284040.91	39°20'06.201"N	80°44'00.024"W	7847.80	343.158	1.05	-0.17	1.03	
15209.00	89.970	345.090	7170.06	7942.20	7602.80	-2298.90	1715791.22	14284132.49	39°20'07.107"N	80°44'00.341"W	7942.77	343.176	0.96	0.28	0.92	
15304.00	89.510	345.040	7170.50	8037.10	7684.59	-2323.38	1715769.74	14284224.24	39°20'06.915"N	80°44'00.649"W	8037.71	343.199	0.49	-0.48	-0.05	
15398.00	89.630	343.600	7171.20	8131.05	7785.08	-2348.79	1715741.35	14284314.70	39°20'08.910"N	80°44'00.969"W	8131.69	343.211	1.54	0.13	-1.53	
15493.00	89.690	343.250	7171.81	8226.03	7876.14	-2375.89	1715714.26	14284405.72	39°20'09.811"N	80°44'01.310"W	8226.69	343.214	0.37	0.00	-0.37	
15588.00	89.780	343.480	7172.30	8321.02	7967.16	-2403.08	1715687.08	14284496.70	39°20'10.711"N	80°44'01.653"W	8321.69	343.215	0.29	0.16	0.24	
15683.00	89.800	340.860	7172.82	8416.01	8057.59	-2432.17	1715658.00	14284587.10	39°20'11.606"N	80°44'02.020"W	8416.86	343.204	2.76	-0.19	-2.76	
15778.00	89.970	344.290	7173.17	8510.98	8148.22	-2460.61	1715629.57	14284677.98	39°20'12.503"N	80°44'02.378"W	8511.64	343.197	3.63	0.39	3.61	
15873.00	89.750	343.680	7173.41	8605.96	8239.53	-2486.82	1715603.37	14284768.96	39°20'13.406"N	80°44'02.708"W	8606.63	343.205	0.68	-0.23	-0.64	
15968.00	89.480	342.930	7174.04	8700.95	8330.52	-2514.11	1715576.09	14284859.92	39°20'14.306"N	80°44'03.052"W	8701.63	343.206	0.84	-0.28	-0.79	
16062.00	89.750	342.880	7174.68	8794.94	8420.37	-2541.74	1715548.47	14284949.73	39°20'15.195"N	80°44'03.401"W	8795.62	343.203	0.29	0.28	-0.05	
16157.00	89.970	343.790	7174.91	8889.93	8511.37	-2568.99	1715521.24	14285040.70	39°20'16.095"N	80°44'03.744"W	8889.62	343.205	0.99	0.23	0.96	
16252.00	89.840	343.430	7174.98	8984.91	8602.51	-2595.79	1715494.44	14285131.80	39°20'16.997"N	80°44'04.082"W	8985.62	343.209	0.38	-0.03	-0.38	
16347.00	89.600	343.270	7175.36	9079.90	8693.53	-2623.01	1715467.23	14285222.78	39°20'17.897"N	80°44'04.425"W	9080.62	343.210	0.40	-0.36	-0.17	
16442.00	89.260	344.450	7176.31	9174.87	8784.78	-2649.42	1715440.84	14285314.00	39°20'18.800"N	80°44'04.757"W	9175.61	343.217	1.29	-0.36	1.24	
16537.00	90.980	342.440	7176.11	9269.85	8875.83	-2676.49	1715413.78	14285405.02	39°20'19.700"N	80°44'05.098"W	9270.60	343.219	2.78	1.91	-2.12	
16632.00	90.310	340.980	7175.04	9364.83	8966.02	-2706.30	1715383.98	14285495.17	39°20'20.593"N	80°44'05.474"W	9365.56	343.204	1.69	-0.71	-1.54	
16727.00	89.970	341.030	7175.14	9459.80	9055.85	-2737.22	1715353.07	14285584.96	39°20'21.481"N	80°44'05.865"W	9460.49	343.182	0.78	-0.78	0.05	
16822.00	89.230	340.420	7176.14	9554.74	9145.52	-2768.58	1715321.73	14285674.60	39°20'22.366"N	80°44'06.260"W	9555.39	343.158	0.74	-0.36	-0.64	
16847.00	89.050	340.670	7176.51	9579.73	9169.09	-2776.90	1715313.41	14285698.16	39°20'22.602"N	80°44'06.366"W	9580.36	343.151	1.23	-0.72	1.00	
16872.00	89.050	340.670	7176.93	9604.71	9192.68	-2785.18	1715305.13	14285721.73	39°20'22.835"N	80°44'06.470"W	9605.34	343.144	0.00	0.00	0.00	Projected MD at TD: 16872'





# Actual Wellpath Report

Telstar Unit 2H AWP Proj: 16872'  
Page 9 of 10



## REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	ISlot #08
Area	Doddridge Co., WV	Well	Telstar Unit 2H
Field	Doddridge	Wellbore	Telstar Unit 2H AWB
Facility	Deets Pad		

## HOLE & CASING SECTIONS - Ref Wellbores: Telstar Unit 2H AWP Ref Wellpath: Telstar Unit 2H AWP Proj: 16872'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
20in Conductor	25.50	105.50	80.00	25.50	105.50	0.00	0.00	-0.05	-0.04
17.5in Open Hole	105.50	410.00	304.50	105.50	410.00	-0.05	-0.04	0.04	-0.10
13.375in Casing Surface	25.50	395.50	370.00	25.50	395.50	0.00	0.00	0.08	-0.07
12.25in Open Hole	410.00	2615.00	2205.00	410.00	2610.53	0.04	-0.10	-22.74	-71.40
9.625in Casing Intermediate	25.50	2594.30	2568.80	25.50	2589.83	0.00	0.00	-23.02	-71.16
8.75in Open Hole	2615.00	5947.00	3332.00	2610.53	5917.27	-22.74	-71.40	-310.38	135.67
8.5in Open Hole	5947.00	16872.00	10925.00	5917.27	7176.93	-310.38	135.67	9192.68	-2785.18

## TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Telstar Unit 2H - POE - Rev-2	7107.00	140.67	60.95	1718150.14	14276673.31	39°18'53.285"N	80°43'30.596"W	point
Telstar Unit 2H - BHL - Rev-2	7151.00	9201.95	-2798.32	1715292.00	14285731.00	39°20'22.927"N	80°44'06.637"W	point
Telstar Unit 2H - LP - Rev-2	7151.00	393.15	-18.72	1718070.50	14276925.68	39°18'55.782"N	80°43'31.600"W	point

## WELLPATH COMPOSITION - Ref Wellbores: Telstar Unit 2H AWP Ref Wellpath: Telstar Unit 2H AWP Proj: 16872'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.50	398.00	Gyrodatta standard - Drop gyro or Multi-shot	01 Gyrodatta MS Gyro <17-1/2">(100-398')	Telstar Unit 2H AWB
398.00	2549.00	BHI NavITrak (Axial)	02 AFS EM <12-1/4">(398-2549)	Telstar Unit 2H AWB
2549.00	5881.00	BHI NavITrak (Axial)	03 AFS EM <8-3/4">(2549-5881)	Telstar Unit 2H AWB
5881.00	16847.00	BHI AutoTrak Curve (Short)	04 BH AT Curve <8-1/2">(5881-16847)	Telstar Unit 2H AWB
16847.00	16872.00	Blind Drilling (std)	Projection to bit	Telstar Unit 2H AWB

47-017-06881P





# Actual Wellpath Report

Telstar Unit 2H AWP Proj: 16872'  
Page 10 of 10



REFERENCE WELLPATH IDENTIFICATION			
Operator	Slot	Slot #08	
ANTERO RESOURCES CORPORATION	Well	Telstar Unit 2H	
Area: Doddridge Co., WV	Wellbore	Telstar Unit 2H AWB	
Field: Doddridge			
Facility: Deets Pad			

COMMENTS
<p><b>Wellpath general comments</b></p> <p>API: 47-017-06881-0000                      BHI Job #: 109894768A                      Rig: H&amp;P 317                      Duration: 07/07/2019-08/06/2019                      Gyrodatta MS Gyro &lt;17-1/2"&gt;(100'-398')                      AFS EM &lt;12-1/4"&gt; (398')(517'-2549')                      AFS EM &lt;8-3/4"&gt; (2549')(2652'-5881')                      BH AT Curve &lt;8-1/2"&gt; (5881')(5923'-16847')                      Middlesex: 6907 MD                      Burkett: 7111' MD                      Tully: 7161' MD                      Marcellus POE: 7309' MD                      Projected MD at TD: 16872'</p>

WW-4A  
Revised 6-07

1) Date: October 17, 2019  
2) Operator's Well Number  
Telstar Unit 2H

3) API Well No.: 47 - 017 - 06881 P

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL**

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>PLEASE SEE ATTACHMENT</u>	Name _____
Address _____	Address _____
(b) Name <u>PLEASE SEE ATTACHMENT</u>	(b) Coal Owner(s) with Declaration
Address _____	Name _____
(c) Name <u>PLEASE SEE ATTACHMENT</u>	Address _____
Address _____	Name _____
6) Inspector	(c) Coal Lessee with Declaration
Address _____	Name _____
Telephone _____	Address _____

**TO THE PERSONS NAMED ABOVE: You should have received this Form and the following documents:**

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.

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WV Department of  
Environmental Protection

Well Operator Antero Resources Corporation  
 By: Diana Hoff  
 Its: VP of Operations  
 Address 1615 Wynkoop Street  
Denver, CO 80202  
 Telephone 303-357-7310

Subscribed and sworn before me this 17th day of October 2019

My Commission Expires \_\_\_\_\_

Oil and Gas Privacy Notice

MARCH 13, 2022

Notary Public

MEGAN GRIFFITH  
 NOTARY PUBLIC  
 STATE OF COLORADO  
 NOTARY ID 20184011666  
 MY COMMISSION EXPIRES MARCH 13, 2022

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at [depprivacyoffier@wv.gov](mailto:depprivacyoffier@wv.gov).

## WW-4A NOTICE OF APPLICATION TO PLUG &amp; ABANDON A WELL ATTACHMENT:

## Surface Owners:

**Tax Parcel ID:** 8-8-36  
**Owner:** Paul Amos Smith  
**Address:** 140 Belvue Drive  
Los Gatos, CA 95032

**Tax Parcel ID:** 8-8-23  
**Owner:** Shelia Kay Haight  
**Address:** 825 Johnson Williams Hollow Road  
West Union, WV 26456

**Tax Parcel ID:** 8-8-38  
**Owner:** Mary Ellene Deets  
**Address:** 5528 Pepperidge Road  
Clinton, OH 44216

**Tax Parcel ID:** 8-8-38  
**Owner:** Donald J. Sponaugle  
**Address:** 5528 Pepperidge Road  
Clinton, OH 44216

**Tax Parcel ID:** 8-8-38  
**Owner:** Carol Lynn Liston  
**Address:** 7490 Beach Road  
Wadsworth, OH 44281

**Tax Parcel ID:** 8-8-38  
**Owner:** Linda Fay Stair  
**Address:** 100 Shayne Lane  
Latrobe, PA 15650

**Tax Parcel ID:** 8-8-38  
**Owner:** Jo Ann Adair  
**Address:** 2473 E. Turkeyfoot Road  
Akron, OH 44319

**Tax Parcel ID:** 8-8-38  
**Owner:** Eva Mae Starcher  
**Address:** 1504 1<sup>st</sup> Street  
Lakemore, OH 44250

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**Tax Parcel ID:** 8-8-38  
**Owner:** Wyonne Sue Bates  
**Address:** 168 Evergreen Circle  
Akron, OH 44301

**Tax Parcel ID:** 8-8-38  
**Owner:** Twillia Jo Radcliffe  
**Address:** 84605 McGill Road  
Tippecanoe, OH 44699

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**SURFACE OWNER WAIVER**

Operator's Well  
Number

Telstar Unit 2H

**INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW4-A**

The well operator named on page WW-4A is applying for a permit from the State to plug and abandon a well. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

**NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.  
WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:**

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

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WV Department of  
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**Time Limits and methods for filing comments.** The law requires these materials to be served on or before the date the operator files his Application. You have **FIVE (5) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

**Comments must be in writing.** Your comments must include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

**If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.**

**VOLUNTARY STATEMENT OF NO OBJECTION**

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application For A Permit To Plug And Abandon on Forms WW-4A and WW-4B, and a survey plat.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON  
ETC.

FOR EXECUTION BY A CORPORATION,  
ETC.

_____	Date _____	Name <u>Antero Resources Corporation</u>
Signature		By <u>Diana Hoff</u>
		Its <u>VP of Operations</u>
		Date <u>10/16/19</u>
		Signature _____
		Date _____



WW-9  
(4/16)

API Number 47 - 017 - 06881  
Operator's Well No. Telstar Unit 2H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 494507062

Watershed (HUC 10) Headwaters Middle Island Creek Quadrangle Smithburg 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes  No

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: No pit will be used at this site (Drilling and Flowback Fluids will be stored in tanks. Cuttings will be tanked and hauled off site.)

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.? N/A

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Undergound Injection ( UIC Permit Number \*UIC Permit # will be provided on Form WR-34 )
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34 )
- Off Site Disposal (Supply form WW-9 for disposal location) (Meadowfill Landfill Permit #SWF-1032-98)
- Other (Explain Northwestern Landfill Permit #SWF-1025/WV0109410)

Will closed loop system be used? If so, describe: Yes, fluids stored in tanks, cuttings removed offsite and taken to landfill.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc.  
Surface - Air/Freshwater, Intermediate - Dust/Stiff Foam, Production - Water Based Mud or Synthetic based mud.

-If oil based, what type? Synthetic, petroleum, etc. Synthetic

Additives to be used in drilling medium? Please See Attachment

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Drill cuttings stored in tanks, removed offsite and taken to landfill.

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? Meadowfill Landfill (Permit #SWF-1032-98), Northwestern Landfill (Permit # SWF-1025/WV0109410)

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *Gretchen Kohler*  
Company Official (Typed Name) Gretchen Kohler  
Company Official Title Senior Environmental & Regulatory Manager

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Subscribed and sworn before me this 17th day of October, 2019

*[Signature]*

Notary Public

My commission expires MARCH 13, 2022

MEGAN GRIFFITH  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20184011666  
MY COMMISSION EXPIRES MARCH 13, 2022

**Antero Resources Corporation**

Proposed Revegetation Treatment: Acres Disturbed 41.13 Prevegetation pH \_\_\_\_\_

Lime 2-4 Tons/acre or to correct to pH 6.5

Fertilizer type Hay or straw or Wood Fiber (will be used where needed)

Fertilizer amount 500 lbs/acre

Mulch 2-3 Tons/acre

Access Road "B" 3132' (13.45 acres) + Well Pad (8.82 acres) + Excess/Topsoil Material Stockpiles (18.86 acres) = 41.13 Acres

**Seed Mixtures**

**Temporary**

**Permanent**

Seed Type	lbs/acre
Annual Ryegrass	40
Field Bromegrass	40

Seed Type	lbs/acre
Crownvetch	10-15
Tall Fescue	30

See attached Table IV-3 for additional seed type (Deets Pad Design Page 51)

See attached Table IV-4A for additional seed type (Deets Pad Design Page 51)

\*or type of grass seed requested by surface owner

\*or type of grass seed requested by surface owner

**Attach:**

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

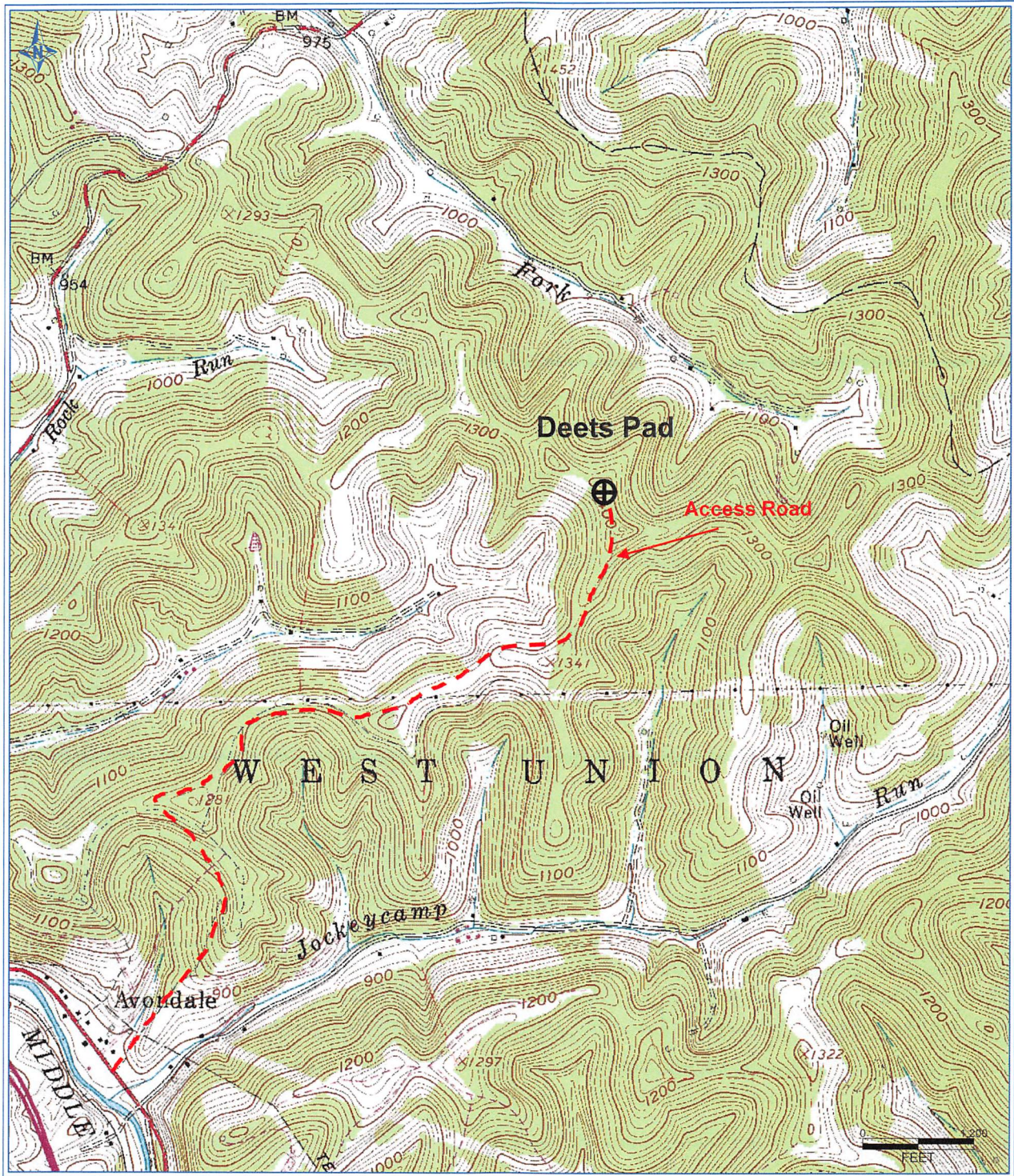
Field Reviewed? ( ) Yes ( ) No

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**Antero Resources Corporation**

Appalachian Basin  
Telstar Unit 2H - Deets Pad  
Doddridge County

Quadrangle: West Union  
Watershed: Middle Island Creek  
District: West Union  
Date: 10-9-2019



WW-7  
8-30-06



West Virginia Department of Environmental Protection  
Office of Oil and Gas  
**WELL LOCATION FORM: GPS**

API: 47-017-06881 WELL NO.: Telstar 2H

FARM NAME: Mary E. Deets and/or Paul A. Smith

RESPONSIBLE PARTY NAME: Antero Resources Corporation

COUNTY: Doddridge DISTRICT: West Union

QUADRANGLE: West Union

SURFACE OWNER: Mary E. Deets

ROYALTY OWNER: \_\_\_\_\_

UTM GPS NORTHING: 4351713.88 m

UTM GPS EASTING: 523689.07 m GPS ELEVATION: 419.6 m (142')

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

- Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) – meters.
- Accuracy to Datum – 3.05 meters
- Data Collection Method:

Survey grade GPS  : Post Processed Differential \_\_\_\_\_  
Real-Time Differential

Mapping Grade GPS  : Post Processed Differential \_\_\_\_\_  
Real-Time Differential

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- Letter size copy of the topography map showing the well location.**

I the undersigned, hereby certify this data is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Office of Oil and Gas.

[Signature]  
Signature

Permitting Agent  
Title

10.17.2019  
Date