WR-35
Rev. 8/23/13

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

API 47- 085 - 10296 County Ritchie District Clay
Quad Pennsboro 7.5' Pad Name Noland Pad Field/Pool Name -----
Farm name Darrell A. Noland et al Well Number Piper Unit 3H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey

Top hole	Northing 4349941m	Easting 501907m
Landing Point of Curve	Northing 4350069m	Easting 502566m
Bottom Hole	Northing 4347925m	Easting 503464m

Elevation (ft) 1143' 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

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Drilling Media Surface hole ■ Air □ Mud □Fresh Water Intermediate hole ■ Air □ Mud □ Fresh Water Production hole □ Air ■ Mud □ Fresh Water □ Brine

Mud Type(s) and Additive(s)
Air - Foam & 4% KCL
Mud - Polymer

Date permit issued 09/07/2016 Date drilling commenced 10/20/2016 Date drilling ceased 4/27/2017
Date completion activities began 7/25/2017 Date completion activities ceased 11/09/2017
Verbal plugging (Y/N) N/A Date permission granted N/A Granted by N/A

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 43', 124', 216' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 1112' Void(s) encountered (Y/N) depths No
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

Reviewed by:

Reviewed
MAG 5-9-2018

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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"	65'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	366'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2615'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	14961'	New	23#, P-110	N/A	Y
Tubing		2-3/8"	6961'		4.7#, N-80		
Packer type and depth set		N/A					

Comment Details

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	102 sx	15.6	1.18	120	0'	8 Hrs.
Surface	Class A	480sx	15.6	1.19	571	0'	8 Hrs.
Coal							
Intermediate 1	Class A	989sx	15.6	1.18	1167	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	905 sx (Lead) 1248 sx (Tail)	13.5 (Lead), 15.2 (Tail)	1.44 (Lead), 1.87 (Tail)	3637	~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 14961' MD, 6429' TVD (BHL), 11013' (Deepest Point Drilled) Loggers TD (ft) 14961' MD

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

Plug back procedure N/A

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Kick off depth (ft) 6396'

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

Well cored ☐ Yes ■ No Conventional Sidewall Were cuttings collected ☐ Yes ■ No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING

Conductor - 0

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

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

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

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

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

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API 47- 085 - 10296 Farm name Darrell A. Noland et al Well number Piper Unit 3H

PERFORATION RECORD

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

***PLEASE SEE ATTACHED EXHIBIT 1**

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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

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***PLEASE SEE ATTACHED EXHIBIT 2**

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Please insert additional pages as applicable.

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API 47- 085 - 10296 Farm name Darrell A. Noland et al Well number Piper Unit 3H

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6376' (TOP)	TVD	7042' (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
	9,898 mcfpd	167 bpd	--- bpd	53 bpd	□ Estimated ■ Orifice □ Pilot

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

*PLEASE SEE ATTACHED EXHIBIT 3

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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 Allied Horizontal Wireline Services
Address 381 Colonial Manor Rd City North Huntingdon State PA Zip 15642

Cementing Company BJ Services
Address 1036 East Main Street City Bridgeport State WV Zip 26330

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

Please insert additional pages as applicable.

Completed by Mallory Stanton Telephone 303-357-7182
Signature [signature] Title Permitting Supervisor Date 04/24/2018

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

API 47-085-10296 Farm Name Darrell A. Noland et al Well Number Piper Unit 3H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	8/8/2017	14807	14859	60	Marcellus
2	10/6/2017	14604	14768	60	Marcellus
3	10/6/2017	14401	14565	60	Marcellus
4	10/6/2017	14198	14362	60	Marcellus
5	10/7/2017	13994	14159	60	Marcellus
6	10/7/2017	13791	13956	60	Marcellus
7	10/7/2017	13588	13753	60	Marcellus
8	10/8/2017	13385	13549	60	Marcellus
9	10/9/2017	13182	13346	60	Marcellus
10	10/9/2017	12979	13143	60	Marcellus
11	10/9/2017	12776	12940	60	Marcellus
12	10/9/2017	12572	12737	60	Marcellus
13	10/10/2017	12369	12534	60	Marcellus
14	10/10/2017	12166	12331	60	Marcellus
15	10/10/2017	11963	12127	60	Marcellus
16	10/10/2017	11760	11924	60	Marcellus
17	10/10/2017	11557	11721	60	Marcellus
18	10/11/2017	11353	11518	60	Marcellus
19	10/11/2017	11150	11315	60	Marcellus
20	10/11/2017	10947	11112	60	Marcellus
21	10/11/2017	10744	10909	60	Marcellus
22	10/11/2017	10541	10705	60	Marcellus
23	10/12/2017	10338	10502	60	Marcellus
24	10/12/2017	10135	10299	60	Marcellus
25	10/12/2017	9931	10096	60	Marcellus
26	10/12/2017	9728	9893	60	Marcellus
27	10/12/2017	9525	9690	60	Marcellus
28	10/13/2017	9322	9486	60	Marcellus
29	10/13/2017	9119	9283	60	Marcellus
30	10/13/2017	8916	9080	60	Marcellus
31	10/13/2017	8713	8877	60	Marcellus
32	10/13/2017	8509	8674	60	Marcellus
33	10/14/2017	8306	8471	60	Marcellus
34	10/14/2017	8103	8268	60	Marcellus
35	10/14/2017	7900	8064	60	Marcellus
36	10/14/2017	7697	7861	60	Marcellus
37	10/14/2017	7494	7658	60	Marcellus
38	10/15/2017	7290	7455	60	Marcellus
39	10/15/2017	7087	7252	60	Marcellus

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API 47-085-10296 Farm Name Darrell A Noland et al Well Number Piper Unit 3H

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	8/8/2017	59.4	8278	0	0	164260	6753.619	N/A
2	10/6/2017	67.2	7859	5989	3724	268740	6667.881	N/A
3	10/6/2017	65.7	6643	5599	3113	416240	8096.19	N/A
4	10/6/2017	70.7	6886	5771	3355	417050	8298.524	N/A
5	10/7/2017	70.6	7047	5395	3543	414370	8261.167	N/A
6	10/7/2017	76.5	7307	5560	3620	417870	8134.429	N/A
7	10/7/2017	76.6	7213	5627	3617	414860	8294.548	N/A
8	10/8/2017	74.6	7120	5404	3543	415970	9705.31	N/A
9	10/9/2017	71.1	6879	6047	3671	415730	8206.833	N/A
10	10/9/2017	70.4	6957	5381	4748	246330	7700.048	N/A
11	10/9/2017	76.9	6998	5327	3360	420570	8771.119	N/A
12	10/9/2017	72.7	6848	6252	3444	409380	9748.286	N/A
13	10/10/2017	72.7	6709	5813	3420	417550	8285.786	N/A
14	10/10/2017	75	7294	6126	4429	417570	8327.024	N/A
15	10/10/2017	78.5	7057	5468	3595	410280	8147.286	N/A
16	10/10/2017	74.5	6793	5741	3545	411880	8140	N/A
17	10/10/2017	73.9	6550	5539	3481	415780	8740.905	N/A
18	10/11/2017	66.8	6474	6150	3599	413560	8073.238	N/A
19	10/11/2017	71.2	6526	5814	3665	419940	8047.619	N/A
20	10/11/2017	73.1	6662	5586	3602	419240	8204.143	N/A
21	10/11/2017	75.9	6751	6099	3549	408320	8000.214	N/A
22	10/11/2017	75.5	6551	5582	3248	418160	8097.381	N/A
23	10/12/2017	72.9	6587	6284	3518	430900	8271.762	N/A
24	10/12/2017	69.6	6719	6382	3557	419760	9083.905	N/A
25	10/12/2017	68.6	6777	6313	3620	417060	9189.024	N/A
26	10/12/2017	74.2	6810	6793	4273	416280	7700.619	N/A
27	10/12/2017	75.9	6932	6856	3741	418200	8081.31	N/A
28	10/13/2017	71.1	6497	6895	3463	417440	7987.881	N/A
29	10/13/2017	74.5	6520	6940	3702	419700	8074.929	N/A
30	10/13/2017	73.3	6557	6617	3595	421500	7916.69	N/A
31	10/13/2017	74.2	7043	6350	3652	415960	9085.143	N/A
32	10/13/2017	68	7585	5774	4663	296640	9188	N/A
33	10/14/2017	71.3	6927	6105	3434	416820	9351.024	N/A
34	10/14/2017	71.7	6866	6438	5833	422060	10711.26	N/A
35	10/14/2017	72.7	6217	6111	3395	417020	7801.452	N/A
36	10/14/2017	70.9	7788	7788	3209	420520	8267.81	N/A
37	10/14/2017	76.1	6634	6872	3499	421900	7833.286	N/A
38	10/15/2017	71.5	6649	6510	3381	421620	7861.833	
39	10/15/2017	73.3	6526	6499	3382	418500	7830.524	N/A
	AVG=	**72.3**	**6,898**	**5,944**	**3,584**	**15,585,530**	**324,938**	TOTAL

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API 47-085-10296 Farm Name Darrell A. Noland et al Well Number Piper Unit 3H

EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD) From Surface	BOTTOM DEPTH (TVD) From Surface	TOP DEPTH (MD) From Surface	BOTTOM DEPTH (MD) From Surface
Fresh Water	43'	N/A	43'	N/A
Fresh Water	124'	N/A	124'	N/A
Fresh Water	216'	N/A	216'	N/A
Siltstone/Sandstone	0	137	0	137
Sandstone	est. 137	217	est. 137	217
Shale	est. 217	357	est. 217	357
Siltsone/ Shale	est. 357	397	est. 357	397
Trace Coal	est. 397	657	est. 397	657
Siltstone	est. 657	697	est. 657	697
Sandstone	est. 697	737	est. 697	737
Siltsone/ Shale	est. 737	757	est. 737	757
Sandstone	est. 757	777	est. 757	777
Shale/ Limestone	est. 777	817	est. 777	817
Silstone	est. 817	877	est. 817	877
Shale	est. 877	957	est. 877	957
Shale	est. 957	997	est. 957	997
Shale/ limestone	est. 997	1,257	est. 997	1,257
Siltstone/ shale	est. 1257	1,357	est. 1257	1,357
Sandstone	est. 1357	1,577	est. 1357	1,577
Sandstone	est. 1577	1,999	est. 1577	2,041
Big Lime	1,999	2,577	2,041	2,647
Gantz	2,577	2,853	2,647	2,939
Fifty Foot Sandstone	2,853	2,950	2,939	3,043
Gordon	2,950	3,316	3,043	3,446
Fifth Sandstone	3,316	3,373	3,446	3,510
Bayard	3,373	3,924	3,510	4,125
Speechley	3,924	4,136	4,125	4,367
Baltown	4,136	4,553	4,367	4,834
Bradford	4,553	4,960	4,834	5,289
Benson	4,960	5,230	5,289	5,592
Alexander	5,230	5,502	5,592	5,895
Elk	5,502	5,797	5,895	6,220
Rhinestreet	5,797	6,131	6,220	6,604
Sycamore	6,131	6,230	6,604	6,738
Middlesex	6,230	6,333	6,738	6,925
Burkett	6,333	6,360	6,925	6,991
Tully	6,360	6,376	6,991	7,042
Marcellus	6,376	NA	7,042	NA

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

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ANTERO RESOURCES CORPORATION

Location: Ritchie County, WV
Field: Ritchie
Facility: Noland Pad

Slot: Slot #10
Well: Piper Unit 3H
Wellbore: Piper Unit 3H PWB

API: 47-085-10296-0000
BHI Job #: 8506917
Rig: Patterson 343
Duration: 04/14/2017-04/17/2017

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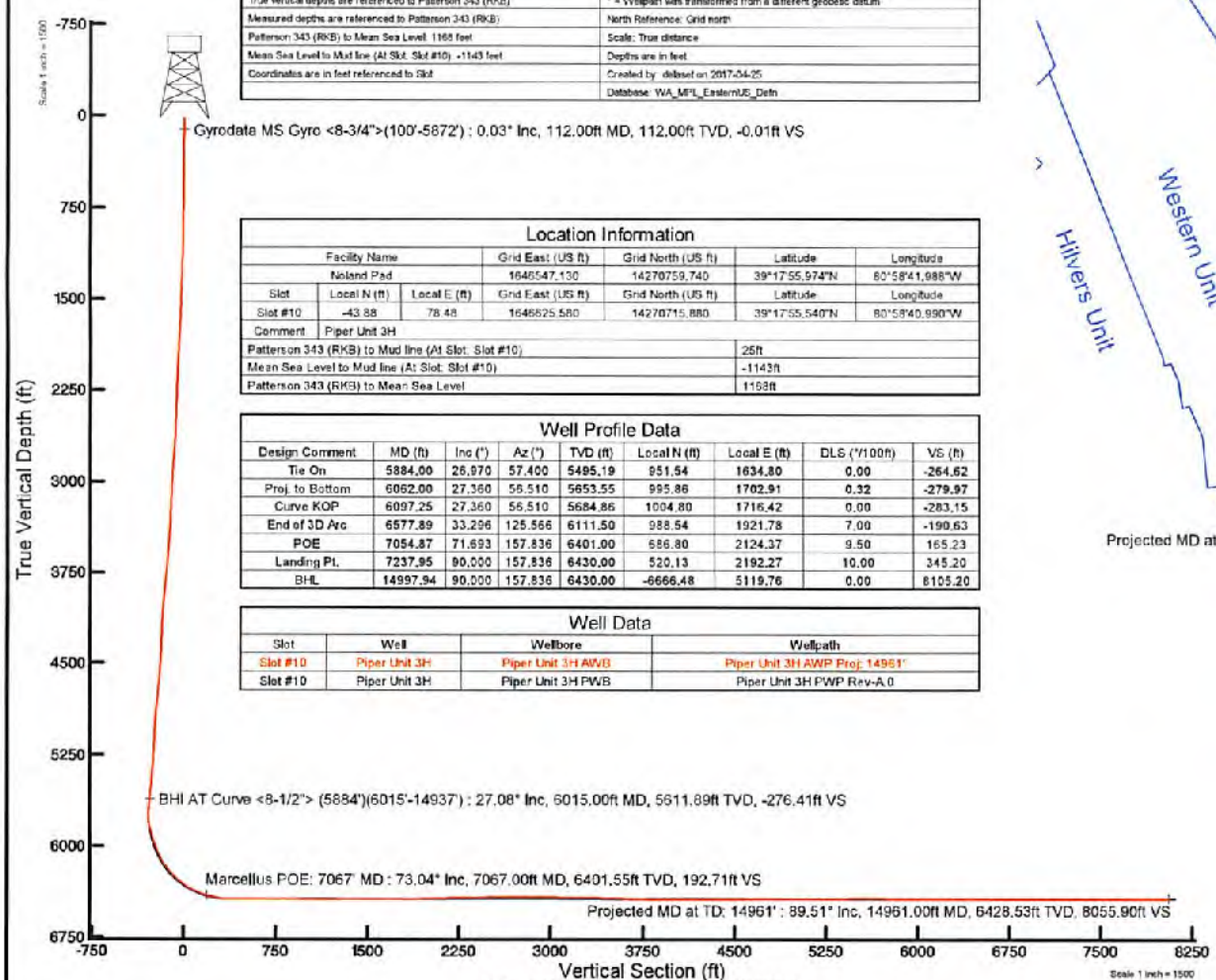
Plot reference wellpath is Piper Unit 3H PWP Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Patterson 343 (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to Patterson 343 (RKB)	North Reference: Grid north
Patterson 343 (RKB) to Mean Sea Level: 1168 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot #10): -1143 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: dallset on 2017-04-25
	Database: WA_MPL_EasternUS_Defn



Location Information

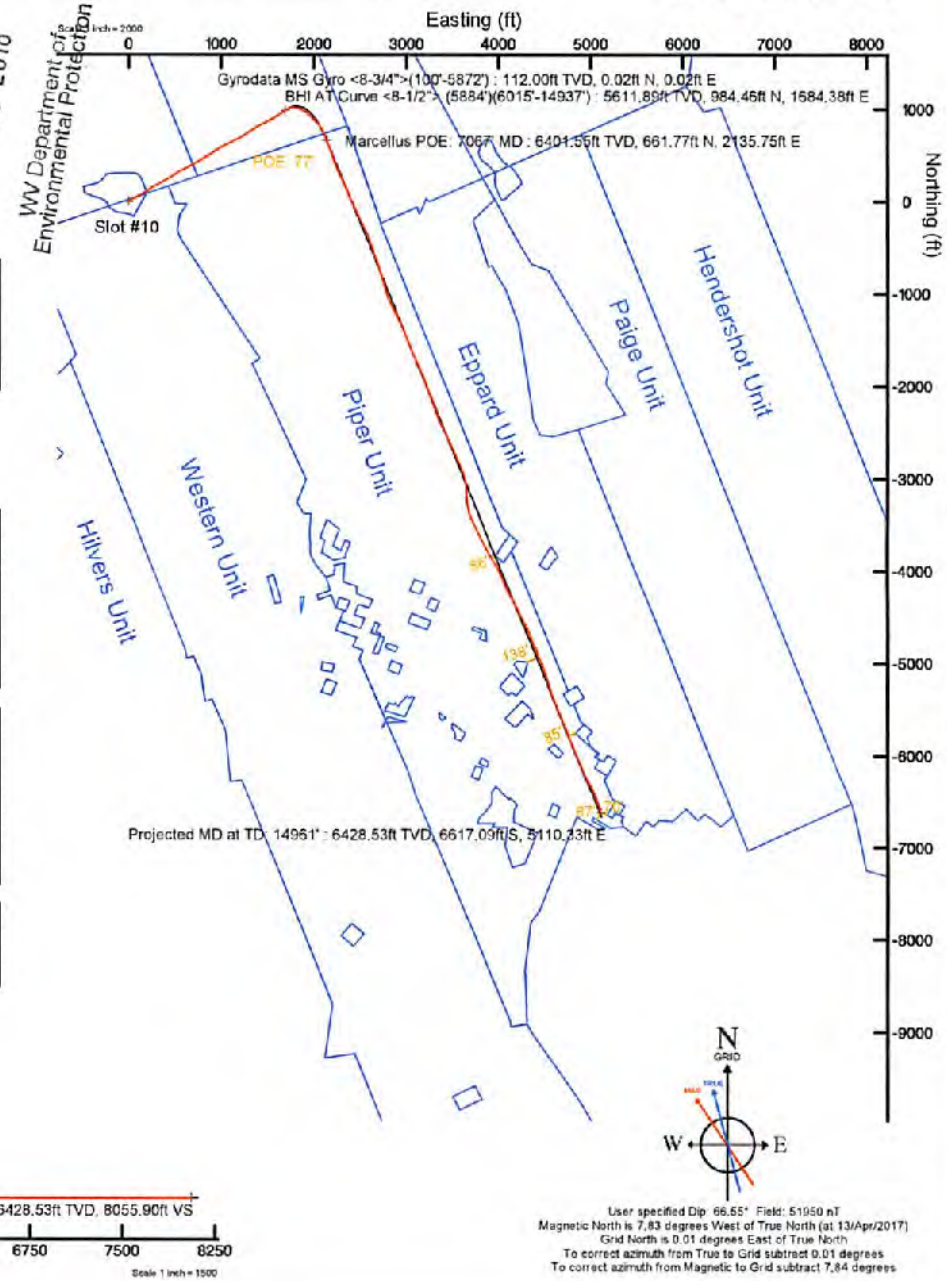
Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Noland Pad			1646547.130	14270759.740	39°17'55.974"N	80°58'41.988"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #10	-43.88	78.48	1646625.580	14270715.880	39°17'55.540"N	80°58'40.990"W
Comment	Piper Unit 3H					
Patterson 343 (RKB) to Mud line (At Slot: Slot #10)					25ft	
Mean Sea Level to Mud line (At Slot: Slot #10)					-1143ft	
Patterson 343 (RKB) to Mean Sea Level					1168ft	

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	5884.00	26.970	57.400	5495.19	951.54	1634.80	0.00	-264.62
Proj. to Bottom	6062.00	27.360	56.510	5653.55	995.86	1702.91	0.32	-279.97
Curve KOP	6097.25	27.360	56.510	5684.86	1004.80	1716.42	0.00	-283.15
End of 3D Arc	6577.89	33.296	125.566	6111.50	988.54	1921.78	7.00	-190.63
POE	7054.87	71.693	157.836	6401.00	686.80	2124.37	9.50	165.23
Landing Pt.	7237.95	90.000	157.836	6430.00	520.13	2192.27	10.00	345.20
BHL	14997.94	90.000	157.836	6430.00	-6666.48	5119.76	0.00	8105.20

Well Data

Slot	Well	Wellbore	Wellpath
Slot #10	Piper Unit 3H	Piper Unit 3H AWB	Piper Unit 3H AWP Proj: 14961'
Slot #10	Piper Unit 3H	Piper Unit 3H PWB	Piper Unit 3H PWP Rev-A.0



User specified Dip: 66.55° Field: 51950 nT
Magnetic North is 7.83 degrees West of True North (at 13/Apr/2017)
Grid North is 0.01 degrees East of True North
To correct azimuth from True to Grid subtract 0.01 degrees
To correct azimuth from Magnetic to Grid subtract 7.84 degrees

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Actual Wellpath Report

Piper Unit 3H AWP Proj: 14961'

REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Piper Unit 3H
Field	Ritchie	Wellbore	Piper Unit 3H AWB
Facility	Noland Pad		

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Delaset
Scale	0.999600	Report Generated	25/Apr/2017 at 13:23
Convergence at slot	0.02° East	Database/Source file	WA_MPL_EasternUS_Defn/Piper_Unit_3H_AWP_Proj__14961_.xml

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-43.88	78.48	1646625.58	14270715.88	39°17'55.540"N	80°58'40.990"W
Facility Reference Pt			1646547.13	14270759.74	39°17'55.974"N	80°58'41.988"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Patterson 343 (RKB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Patterson 343 (RKB) to Mean Sea Level	1168.00ft
Vertical Reference Pt	Patterson 343 (RKB)	Patterson 343 (RKB) to Mud Line at Slot (Slot #10)	25.00ft
MD Reference Pt	Patterson 343 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	157.84°

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Actual Wellpath Report

Piper Unit 3H AWP Proj: 14961'

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Piper Unit 3H
Field	Ritchie	Wellbore	Piper Unit 3H AWB
Facility	Noland Pad		

WELLPATH DATA (175 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]	Comments
0.00†	0.000	42.200	0.00	0.00	0.00	0.00	1646625.58	14270715.88	39°17'55.540"N	80°58'40.990"W	0.00	0.000	0.00	0.00	0.00	
25.00	0.000	42.200	25.00	0.00	0.00	0.00	1646625.58	14270715.88	39°17'55.540"N	80°58'40.990"W	0.00	0.000	0.00	0.00	0.00	
112.00	0.030	42.200	112.00	-0.01	0.02	0.02	1646625.60	14270715.90	39°17'55.540"N	80°58'40.990"W	0.02	42.200	0.03	0.03	48.51	Gyrodata MS Gyro <8-3/4">(100'-5872')
212.00	0.240	349.630	212.00	-0.23	0.24	0.00	1646625.58	14270716.12	39°17'55.542"N	80°58'40.990"W	0.24	358.862	0.22	0.21	-52.57	
312.00	0.220	28.360	312.00	-0.55	0.62	0.05	1646625.63	14270716.50	39°17'55.546"N	80°58'40.989"W	0.62	4.509	0.15	-0.02	38.73	
412.00	0.210	30.490	412.00	-0.79	0.94	0.23	1646625.81	14270716.82	39°17'55.549"N	80°58'40.987"W	0.97	13.855	0.01	-0.01	2.13	
512.00	0.610	30.800	512.00	-1.22	1.56	0.60	1646626.18	14270717.44	39°17'55.555"N	80°58'40.982"W	1.67	20.996	0.40	0.40	0.31	
612.00	1.920	42.660	611.97	-2.25	3.25	2.01	1646627.59	14270719.13	39°17'55.572"N	80°58'40.964"W	3.82	31.699	1.33	1.31	11.86	
712.00	3.910	50.760	711.84	-3.97	6.64	5.78	1646631.36	14270722.51	39°17'55.606"N	80°58'40.916"W	8.80	41.062	2.03	1.99	8.10	
812.00	5.670	59.400	811.48	-5.69	11.31	12.68	1646638.25	14270727.18	39°17'55.652"N	80°58'40.829"W	16.99	48.261	1.90	1.76	8.64	
912.00	7.180	63.690	910.85	-6.87	16.59	22.53	1646648.10	14270732.47	39°17'55.704"N	80°58'40.703"W	27.98	53.627	1.58	1.51	4.29	
1012.00	8.700	63.040	1009.89	-7.96	22.79	34.87	1646660.44	14270738.66	39°17'55.765"N	80°58'40.546"W	41.66	56.832	1.52	1.52	-0.65	
1112.00	10.650	65.120	1108.46	-9.03	30.11	50.00	1646675.56	14270745.98	39°17'55.837"N	80°58'40.354"W	58.37	58.943	1.98	1.95	2.08	
1212.00	12.480	60.510	1206.43	-10.84	39.32	67.79	1646693.34	14270755.18	39°17'55.928"N	80°58'40.128"W	78.37	59.886	2.05	1.83	-4.61	
1312.00	15.010	60.630	1303.56	-13.85	50.99	88.48	1646714.03	14270766.85	39°17'56.044"N	80°58'39.864"W	102.12	60.047	2.53	2.53	0.12	
1412.00	17.140	59.980	1399.65	-17.49	64.71	112.53	1646738.06	14270780.57	39°17'56.179"N	80°58'39.558"W	129.81	60.097	2.14	2.13	-0.65	
1512.00	17.380	59.950	1495.14	-21.55	79.57	138.22	1646763.74	14270795.41	39°17'56.326"N	80°58'39.232"W	159.48	60.073	0.24	0.24	-0.03	
1612.00	17.450	58.860	1590.56	-25.94	94.80	163.98	1646789.49	14270810.64	39°17'56.477"N	80°58'38.904"W	189.41	59.967	0.33	0.07	-1.09	
1712.00	17.840	57.740	1685.85	-30.97	110.73	189.76	1646815.27	14270826.56	39°17'56.634"N	80°58'38.576"W	219.71	59.736	0.52	0.39	-1.12	
1812.00	17.250	57.020	1781.20	-36.44	126.98	215.16	1646840.65	14270842.80	39°17'56.794"N	80°58'38.253"W	249.83	59.453	0.63	-0.59	-0.72	
1912.00	17.170	56.840	1876.72	-42.04	143.12	239.95	1646865.43	14270858.94	39°17'56.954"N	80°58'37.937"W	279.39	59.186	0.10	-0.08	-0.18	
2012.00	17.110	59.340	1972.28	-47.03	158.70	264.96	1646890.43	14270874.51	39°17'57.108"N	80°58'37.619"W	308.85	59.081	0.74	-0.06	2.50	
2112.00	18.150	61.800	2067.59	-50.85	173.56	291.34	1646916.81	14270889.37	39°17'57.255"N	80°58'37.283"W	339.12	59.217	1.28	1.04	2.46	
2212.00	18.420	62.050	2162.54	-54.08	188.32	319.03	1646944.48	14270904.13	39°17'57.401"N	80°58'36.931"W	370.46	59.446	0.28	0.27	0.25	
2312.00	17.330	61.770	2257.71	-57.25	202.77	346.10	1646971.55	14270918.57	39°17'57.543"N	80°58'36.587"W	401.13	59.635	1.09	-1.09	-0.28	
2412.00	16.510	60.760	2353.38	-60.57	216.76	371.63	1646997.06	14270932.55	39°17'57.681"N	80°58'36.262"W	430.22	59.746	0.87	-0.82	-1.01	
2512.00	17.130	62.230	2449.10	-63.76	230.56	397.06	1647022.48	14270946.35	39°17'57.818"N	80°58'35.939"W	459.14	59.857	0.75	0.62	1.47	
2612.00	17.310	62.660	2544.62	-66.55	244.26	423.30	1647048.71	14270960.04	39°17'57.953"N	80°58'35.605"W	488.72	60.014	0.22	0.18	0.43	
2712.00	16.720	59.540	2640.24	-69.97	258.38	448.92	1647074.32	14270974.16	39°17'58.093"N	80°58'35.279"W	517.96	60.077	1.09	-0.59	-3.12	
2812.00	18.580	54.010	2735.54	-75.85	275.04	474.21	1647099.60	14270990.81	39°17'58.257"N	80°58'34.957"W	548.20	59.887	2.50	1.86	-5.53	

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Actual Wellpath Report

Piper Unit 3H AWP Proj: 14961'

REFERENCE WELLPATH IDENTIFICATION			
Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Piper Unit 3H
Field	Ritchie	Wellbore	Piper Unit 3H AWB
Facility	Noland Pad		

WELLPATH DATA (175 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
2912.00	20.240	53.140	2829.85	-84.05	294.78	500.94	1647126.32	14271010.54	39°17'58.452"N	80°58'34.617"W	581.24	59.526	1.68	1.66	-0.87	
3012.00	20.940	59.870	2923.48	-90.92	314.13	530.24	1647155.61	14271029.88	39°17'58.643"N	80°58'34.244"W	616.31	59.357	2.47	0.70	6.73	
3112.00	22.980	62.380	3016.22	-95.25	332.15	563.00	1647188.35	14271047.90	39°17'58.821"N	80°58'33.827"W	653.67	59.461	2.25	2.04	2.51	
3212.00	25.470	62.700	3107.41	-99.04	351.06	599.41	1647224.75	14271066.80	39°17'59.008"N	80°58'33.364"W	694.65	59.643	2.49	2.49	0.32	
3312.00	26.010	62.770	3197.48	-102.90	370.96	638.01	1647263.33	14271086.69	39°17'59.205"N	80°58'32.873"W	738.02	59.825	0.54	0.54	0.07	
3412.00	25.680	61.610	3287.48	-107.19	391.29	676.57	1647301.88	14271107.02	39°17'59.406"N	80°58'32.383"W	781.57	59.957	0.60	-0.33	-1.16	
3512.00	26.030	60.770	3377.47	-112.24	412.31	714.78	1647340.07	14271128.02	39°17'59.613"N	80°58'31.896"W	825.17	60.022	0.51	0.35	-0.84	
3612.00	26.470	60.240	3467.16	-117.89	434.09	753.27	1647378.55	14271149.79	39°17'59.828"N	80°58'31.407"W	869.40	60.047	0.50	0.44	-0.53	
3712.00	26.540	59.150	3556.65	-124.22	456.61	791.80	1647417.06	14271172.30	39°18'00.051"N	80°58'30.917"W	914.02	60.029	0.49	0.07	-1.09	
3812.00	26.200	57.310	3646.24	-131.63	479.99	829.56	1647454.81	14271195.67	39°18'00.282"N	80°58'30.436"W	958.41	59.946	0.89	-0.34	-1.84	
3912.00	25.610	55.570	3736.20	-140.25	504.13	865.97	1647491.20	14271219.81	39°18'00.520"N	80°58'29.973"W	1002.02	59.794	0.96	-0.59	-1.74	
4012.00	26.400	56.350	3826.07	-149.27	528.67	902.30	1647527.52	14271244.33	39°18'00.763"N	80°58'29.511"W	1045.77	59.633	0.86	0.79	0.78	
4112.00	27.120	56.650	3915.36	-158.13	553.52	939.85	1647565.05	14271269.17	39°18'01.008"N	80°58'29.033"W	1090.73	59.504	0.73	0.72	0.30	
4212.00	28.860	58.860	4003.66	-166.32	578.53	979.55	1647604.73	14271294.18	39°18'01.255"N	80°58'28.528"W	1137.63	59.433	2.03	1.74	2.21	
4312.00	29.110	61.790	4091.14	-172.65	602.51	1021.64	1647646.81	14271318.15	39°18'01.492"N	80°58'27.992"W	1186.07	59.470	1.44	0.25	2.93	
4412.00	28.900	65.270	4178.61	-176.30	624.12	1065.03	1647690.18	14271339.75	39°18'01.706"N	80°58'27.440"W	1234.42	59.629	1.70	-0.21	3.48	
4512.00	28.260	64.120	4266.42	-178.92	644.56	1108.27	1647733.41	14271360.18	39°18'01.908"N	80°58'26.890"W	1282.08	59.818	0.84	-0.64	-1.15	
4612.00	26.800	63.620	4355.10	-182.11	664.91	1149.77	1647774.89	14271380.53	39°18'02.109"N	80°58'26.362"W	1328.19	59.959	1.48	-1.46	-0.50	
4712.00	25.430	61.320	4444.89	-186.21	685.23	1188.81	1647813.91	14271400.84	39°18'02.309"N	80°58'25.866"W	1372.16	60.041	1.70	-1.37	-2.30	
4812.00	25.570	59.160	4535.15	-191.90	706.60	1226.17	1647851.26	14271422.20	39°18'02.521"N	80°58'25.390"W	1415.20	60.047	0.94	0.14	-2.16	
4912.00	25.000	56.110	4625.57	-199.46	729.45	1262.25	1647887.32	14271445.04	39°18'02.746"N	80°58'24.931"W	1457.86	59.976	1.42	-0.57	-3.05	
5012.00	26.520	56.970	4715.83	-207.96	753.40	1298.51	1647923.56	14271468.98	39°18'02.983"N	80°58'24.470"W	1501.24	59.877	1.57	1.52	0.86	
5112.00	27.280	56.230	4804.81	-216.78	778.31	1336.28	1647961.32	14271493.88	39°18'03.229"N	80°58'23.989"W	1546.41	59.781	0.83	0.76	-0.74	
5212.00	26.550	57.390	4893.98	-225.45	803.09	1374.15	1647999.18	14271518.65	39°18'03.474"N	80°58'23.508"W	1591.62	59.697	0.90	-0.73	1.16	
5312.00	27.140	61.490	4983.21	-232.03	826.03	1413.02	1648038.04	14271541.58	39°18'03.700"N	80°58'23.013"W	1636.75	59.690	1.94	0.59	4.10	
5412.00	27.560	63.690	5072.03	-236.22	847.17	1453.80	1648078.80	14271562.71	39°18'03.909"N	80°58'22.494"W	1682.63	59.770	1.09	0.42	2.20	
5512.00	26.660	62.220	5161.05	-240.10	867.88	1494.39	1648119.37	14271583.41	39°18'04.114"N	80°58'21.978"W	1728.13	59.854	1.12	-0.90	-1.47	
5612.00	25.580	60.140	5250.83	-245.19	889.08	1532.97	1648157.93	14271604.61	39°18'04.323"N	80°58'21.487"W	1772.13	59.887	1.42	-1.08	-2.08	
5712.00	26.040	58.890	5340.86	-251.49	911.17	1570.48	1648195.43	14271626.69	39°18'04.542"N	80°58'21.010"W	1815.67	59.878	0.71	0.46	-1.25	
5812.00	25.970	57.510	5430.74	-258.83	934.28	1607.74	1648232.68	14271649.78	39°18'04.770"N	80°58'20.536"W	1859.49	59.839	0.61	-0.07	-1.38	

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Actual Wellpath Report

Piper Unit 3H AWP Proj: 14961'

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Piper Unit 3H
Field	Ritchie	Wellbore	Piper Unit 3H AWB
Facility	Noland Pad		

WELLPATH DATA (175 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
5884.00	26.970	57.400	5495.19	-264.62	951.54	1634.80	1648259.72	14271667.04	39°18'04.940"N	80°58'20.191"W	1891.56	59.798	1.39	1.39	-0.15	
6015.00	27.080	55.440	5611.89	-276.41	984.46	1684.38	1648309.28	14271699.95	39°18'05.266"N	80°58'19.561"W	1950.97	59.695	0.68	0.08	-1.50	BHI AT Curve <8-1/2"> (5884')(6015'-14937')
6085.00	24.660	54.180	5674.86	-283.28	1002.06	1709.35	1648334.25	14271717.53	39°18'05.439"N	80°58'19.243"W	1981.42	59.620	3.52	-3.43	-1.80	
6114.00	22.910	58.200	5701.40	-285.65	1008.57	1719.06	1648343.95	14271724.05	39°18'05.504"N	80°58'19.119"W	1993.09	59.600	8.28	-6.10	13.86	
6161.00	22.460	68.720	5744.78	-287.05	1016.66	1735.21	1648360.09	14271732.13	39°18'05.584"N	80°58'18.914"W	2011.11	59.634	8.67	-0.96	22.38	
6208.00	23.020	81.750	5788.15	-284.70	1021.24	1752.68	1648377.56	14271736.71	39°18'05.629"N	80°58'18.692"W	2028.50	59.772	10.76	1.19	27.72	
6255.00	22.400	93.300	5831.53	-278.64	1022.04	1770.73	1648395.59	14271737.51	39°18'05.637"N	80°58'18.462"W	2044.51	60.007	9.56	-1.32	24.57	
6303.00	24.790	101.170	5875.53	-269.17	1019.56	1789.74	1648414.60	14271735.03	39°18'05.612"N	80°58'18.220"W	2059.77	60.331	8.23	4.98	16.40	
6350.00	27.230	106.060	5917.77	-257.10	1014.68	1809.74	1648434.59	14271730.15	39°18'05.564"N	80°58'17.966"W	2074.79	60.722	6.91	5.19	10.40	
6396.00	29.020	107.250	5958.33	-243.51	1008.46	1830.51	1648455.36	14271723.93	39°18'05.502"N	80°58'17.702"W	2089.92	61.149	4.08	3.89	2.59	
6443.00	29.010	109.690	5999.44	-228.67	1001.24	1852.13	1648476.97	14271716.71	39°18'05.431"N	80°58'17.427"W	2105.44	61.605	2.52	-0.02	5.19	
6490.00	29.980	117.600	6040.36	-212.09	991.95	1873.28	1648498.10	14271707.43	39°18'05.339"N	80°58'17.158"W	2119.70	62.098	8.53	2.06	16.83	
6537.00	31.740	124.900	6080.72	-192.75	979.43	1893.83	1648518.65	14271694.92	39°18'05.215"N	80°58'16.896"W	2132.11	62.653	8.80	3.74	15.53	
6584.00	33.880	128.620	6120.22	-170.93	964.18	1914.21	1648539.02	14271679.67	39°18'05.064"N	80°58'16.637"W	2143.33	63.266	6.25	4.55	7.91	
6682.00	41.450	132.500	6197.75	-117.69	925.16	1959.54	1648584.33	14271640.66	39°18'04.678"N	80°58'16.061"W	2166.96	64.727	8.09	7.72	3.96	
6729.00	45.130	133.700	6231.96	-88.42	903.13	1983.06	1648607.84	14271618.65	39°18'04.461"N	80°58'15.761"W	2179.03	65.514	8.02	7.83	2.55	
6763.00†	48.859	135.319	6255.15	-65.59	885.70	2000.78	1648625.55	14271601.22	39°18'04.288"N	80°58'15.536"W	2188.05	66.122	11.51	10.97	4.76	Middlesex: 6763' MD
6773.00	49.960	135.760	6261.65	-58.57	880.28	2005.09	1648630.87	14271595.80	39°18'04.235"N	80°58'15.469"W	2190.73	66.308	11.51	11.01	4.41	
6820.00	53.880	139.580	6290.64	-23.85	852.92	2030.97	1648655.73	14271568.46	39°18'03.964"N	80°58'15.152"W	2202.80	67.220	10.51	8.34	8.13	
6868.00	56.800	143.520	6317.94	14.04	822.00	2055.49	1648680.25	14271537.55	39°18'03.659"N	80°58'14.840"W	2213.76	68.203	9.09	6.08	8.21	
6915.00	61.080	148.750	6342.20	53.44	788.57	2077.87	1648702.62	14271504.13	39°18'03.328"N	80°58'14.556"W	2222.48	69.218	13.19	9.11	11.15	
6950.00†	63.741	152.018	6358.41	84.19	761.60	2093.19	1648717.93	14271477.18	39°18'03.062"N	80°58'14.361"W	2227.44	70.006	11.22	7.60	9.31	Burket: 6950' MD
6962.00	64.670	153.100	6363.63	94.95	752.01	2098.17	1648722.90	14271467.59	39°18'02.967"N	80°58'14.298"W	2228.86	70.282	11.22	7.74	9.02	
7009.00	68.450	157.660	6382.33	138.01	712.82	2116.10	1648740.83	14271428.42	39°18'02.579"N	80°58'14.070"W	2232.93	71.384	11.99	8.04	9.70	
7016.00†	68.974	157.983	6384.88	144.53	706.78	2118.56	1648743.29	14271422.38	39°18'02.520"N	80°58'14.039"W	2233.35	71.551	8.64	7.49	4.62	Tully: 7016' MD
7056.00	71.980	159.790	6398.24	182.22	671.62	2132.13	1648756.86	14271387.23	39°18'02.172"N	80°58'13.866"W	2235.41	72.516	8.64	7.51	4.52	
7067.00†	73.042	159.890	6401.55	192.71	661.77	2135.75	1648760.47	14271377.38	39°18'02.075"N	80°58'13.820"W	2235.92	72.784	9.70	9.66	0.91	Marcellus POE: 7067' MD
7103.00	76.520	160.210	6411.00	227.41	629.12	2147.60	1648772.31	14271344.75	39°18'01.752"N	80°58'13.670"W	2237.85	73.673	9.70	9.66	0.89	
7151.00	80.550	159.470	6420.54	274.42	584.97	2163.81	1648788.52	14271300.61	39°18'01.316"N	80°58'13.464"W	2241.49	74.872	8.53	8.40	-1.54	
7198.00	84.640	159.940	6426.59	320.99	541.26	2179.97	1648804.68	14271256.93	39°18'00.884"N	80°58'13.258"W	2246.16	76.056	8.76	8.70	1.00	

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Actual Wellpath Report

Piper Unit 3H AWP Proj: 14961'

REFERENCE WELLPATH IDENTIFICATION

Operator	ANTERO RESOURCES CORPORATION	Slot	Slot #10
Area	Ritchie County, WV	Well	Piper Unit 3H
Field	Ritchie	Wellbore	Piper Unit 3H AWB
Facility	Noland Pad		

WELLPATH DATA (175 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
7245.00	88.030	160.870	6429.60	367.84	497.08	2195.70	1648820.40	14271212.76	39°18'00.447"N	80°58'13.058"W	2251.26	77.244	7.48	7.21	1.98	
7292.00	90.000	160.690	6430.40	414.77	452.71	2211.17	1648835.86	14271168.41	39°18'00.008"N	80°58'12.862"W	2257.04	78.429	4.21	4.19	-0.38	
7339.00	90.060	159.260	6430.38	461.73	408.55	2227.26	1648851.95	14271124.27	39°17'59.572"N	80°58'12.657"W	2264.42	79.606	3.05	0.13	-3.04	
7433.00	90.000	155.840	6430.33	555.72	321.69	2263.15	1648887.82	14271037.44	39°17'58.713"N	80°58'12.201"W	2285.90	81.910	3.64	-0.06	-3.64	
7528.00	89.910	154.340	6430.40	650.61	235.53	2303.16	1648927.82	14270951.32	39°17'57.861"N	80°58'11.692"W	2315.18	84.161	1.58	-0.09	-1.58	
7622.00	89.940	156.680	6430.53	744.52	149.99	2342.13	1648966.77	14270865.81	39°17'57.016"N	80°58'11.197"W	2346.93	86.336	2.49	0.03	2.49	
7716.00	89.820	156.630	6430.72	838.50	63.69	2379.38	1649004.00	14270779.54	39°17'56.163"N	80°58'10.724"W	2380.23	88.467	0.14	-0.13	-0.05	
7810.00	89.940	156.100	6430.92	932.47	-22.42	2417.06	1649041.67	14270693.46	39°17'55.311"N	80°58'10.245"W	2417.17	90.532	0.58	0.13	-0.56	
7905.00	89.720	155.430	6431.20	1027.41	-109.05	2456.06	1649080.65	14270606.87	39°17'54.455"N	80°58'09.749"W	2458.48	92.542	0.74	-0.23	-0.71	
7999.00	89.720	153.970	6431.66	1121.26	-194.03	2496.23	1649120.80	14270521.93	39°17'53.615"N	80°58'09.238"W	2503.76	94.445	1.55	0.00	-1.55	
8093.00	90.680	153.180	6431.33	1215.00	-278.21	2538.06	1649162.62	14270437.78	39°17'52.783"N	80°58'08.707"W	2553.26	96.255	1.32	1.02	-0.84	
8187.00	90.220	158.640	6430.60	1308.91	-363.99	2576.41	1649200.96	14270352.04	39°17'51.935"N	80°58'08.219"W	2602.00	98.041	5.83	-0.49	5.81	
8281.00	89.850	160.920	6430.54	1402.85	-452.19	2608.90	1649233.43	14270263.87	39°17'51.063"N	80°58'07.806"W	2647.80	99.833	2.46	-0.39	2.43	
8375.00	90.120	160.690	6430.56	1496.72	-540.96	2639.80	1649264.32	14270175.14	39°17'50.186"N	80°58'07.414"W	2694.66	101.581	0.38	0.29	-0.24	
8469.00	90.030	160.010	6430.44	1590.63	-629.49	2671.41	1649295.92	14270086.65	39°17'49.311"N	80°58'07.012"W	2744.58	103.259	0.73	-0.10	-0.72	
8563.00	90.150	161.330	6430.29	1684.51	-718.19	2702.53	1649327.02	14269997.98	39°17'48.434"N	80°58'06.617"W	2796.33	104.882	1.41	0.13	1.40	
8657.00	91.110	163.970	6429.26	1778.17	-807.89	2730.55	1649355.04	14269908.31	39°17'47.547"N	80°58'06.260"W	2847.56	106.482	2.99	1.02	2.81	
8751.00	91.020	163.970	6427.51	1871.61	-898.22	2756.51	1649380.98	14269818.02	39°17'46.654"N	80°58'05.931"W	2899.16	108.048	0.10	-0.10	0.00	
8845.00	91.350	161.960	6425.57	1965.21	-988.08	2784.04	1649408.50	14269728.20	39°17'45.766"N	80°58'05.581"W	2954.18	109.540	2.17	0.35	-2.14	
8939.00	91.600	157.470	6423.15	2059.11	-1076.19	2816.61	1649441.05	14269640.12	39°17'44.895"N	80°58'05.167"W	3015.21	110.911	4.78	0.27	-4.78	
9034.00	90.920	151.920	6421.06	2153.90	-1162.02	2857.19	1649481.62	14269554.32	39°17'44.046"N	80°58'04.651"W	3084.45	112.132	5.88	-0.72	-5.84	
9128.00	90.800	153.610	6419.65	2247.52	-1245.59	2900.20	1649524.61	14269470.79	39°17'43.220"N	80°58'04.105"W	3156.37	113.243	1.80	-0.13	1.80	
9222.00	90.920	155.820	6418.23	2341.37	-1330.57	2940.34	1649564.74	14269385.85	39°17'42.380"N	80°58'03.594"W	3227.39	114.348	2.35	0.13	2.35	
9316.00	90.920	154.800	6416.72	2435.26	-1415.96	2979.60	1649603.98	14269300.49	39°17'41.536"N	80°58'03.095"W	3298.94	115.418	1.08	0.00	-1.09	
9410.00	91.050	159.280	6415.11	2529.21	-1502.48	3016.25	1649640.62	14269214.00	39°17'40.681"N	80°58'02.630"W	3369.75	116.479	4.77	0.14	4.77	
9505.00	90.400	157.300	6413.91	2624.20	-1590.73	3051.39	1649675.75	14269125.79	39°17'39.809"N	80°58'02.183"W	3441.14	117.534	2.19	-0.68	-2.08	
9599.00	89.940	155.080	6413.63	2718.15	-1676.72	3089.34	1649713.68	14269039.83	39°17'38.958"N	80°58'01.701"W	3515.03	118.491	2.41	-0.49	-2.36	
9693.00	89.940	156.790	6413.73	2812.10	-1762.55	3127.67	1649751.99	14268954.04	39°17'38.110"N	80°58'01.214"W	3590.11	119.403	1.82	0.00	1.82	
9788.00	89.230	157.190	6414.41	2907.08	-1849.99	3164.80	1649789.11	14268866.63	39°17'37.246"N	80°58'00.742"W	3665.84	120.308	0.86	-0.75	0.42	
9882.00	89.420	158.210	6415.52	3001.07	-1936.95	3200.47	1649824.76	14268779.71	39°17'36.386"N	80°58'00.289"W	3740.96	121.183	1.10	0.20	1.09	

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Field	Ritchie	Wellbore	Piper Unit 3H AWB
Facility	Noland Pad		

WELLPATH DATA (175 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
9976.00	89.820	161.660	6416.14	3095.00	-2025.23	3232.71	1649858.99	14268691.46	39°17'35.513"N	80°57'59.879"W	3814.70	122.066	3.69	0.43	3.67	
10071.00	89.260	161.280	6416.91	3189.80	-2115.30	3262.90	1649887.17	14268601.43	39°17'34.623"N	80°57'59.495"W	3888.58	122.955	0.71	-0.59	-0.40	
10165.00	89.080	161.180	6418.27	3283.63	-2204.29	3293.14	1649917.40	14268512.47	39°17'33.743"N	80°57'59.111"W	3962.79	123.797	0.22	-0.19	-0.11	
10259.00	88.550	159.170	6420.21	3377.52	-2292.70	3325.01	1649949.26	14268424.10	39°17'32.869"N	80°57'58.706"W	4038.84	124.587	2.21	-0.56	-2.14	
10353.00	88.490	155.350	6422.64	3471.47	-2379.35	3361.33	1649985.56	14268337.49	39°17'32.013"N	80°57'58.245"W	4118.23	125.293	4.06	-0.06	-4.06	
10448.00	88.340	153.260	6425.27	3566.25	-2464.92	3402.50	1650026.72	14268251.96	39°17'31.167"N	80°57'57.721"W	4201.53	125.921	2.20	-0.16	-2.20	
10542.00	88.340	154.290	6427.99	3659.97	-2549.20	3444.02	1650068.22	14268167.70	39°17'30.334"N	80°57'57.194"W	4284.83	126.508	1.10	0.00	1.10	
10636.00	88.400	154.610	6430.67	3753.77	-2633.98	3484.55	1650108.73	14268082.96	39°17'29.496"N	80°57'56.679"W	4368.06	127.086	0.35	0.06	0.34	
10730.00	89.320	156.300	6432.54	3847.66	-2719.46	3523.59	1650147.75	14267997.51	39°17'28.651"N	80°57'56.183"W	4450.97	127.661	2.05	0.98	1.80	
10825.00	89.450	155.910	6433.56	3942.61	-2806.31	3562.07	1650186.21	14267910.69	39°17'27.792"N	80°57'55.694"W	4534.72	128.232	0.43	0.14	-0.41	
10919.00	89.600	155.350	6434.34	4036.54	-2891.93	3600.85	1650224.98	14267825.11	39°17'26.946"N	80°57'55.201"W	4618.38	128.769	0.62	0.16	-0.60	
11013.00	90.400	166.720	6434.34	4130.24	-2980.69	3631.35	1650255.47	14267736.39	39°17'26.068"N	80°57'54.813"W	4698.00	129.380	12.13	0.85	12.10	
11107.00	90.340	173.940	6433.73	4221.95	-3073.29	3647.13	1650271.24	14267643.83	39°17'25.153"N	80°57'54.613"W	4769.34	130.119	7.68	-0.06	7.68	
11201.00	90.250	179.790	6433.24	4310.78	-3167.10	3652.27	1650276.38	14267550.05	39°17'24.226"N	80°57'54.548"W	4834.21	130.931	6.22	-0.10	6.22	
11295.00	90.280	170.270	6432.81	4400.47	-3260.64	3660.40	1650284.51	14267456.55	39°17'23.301"N	80°57'54.445"W	4902.07	131.694	10.13	0.03	-10.13	
11390.00	90.400	167.450	6432.24	4493.71	-3353.84	3678.75	1650302.86	14267363.39	39°17'22.380"N	80°57'54.212"W	4978.10	132.355	2.97	0.13	-2.97	
11484.00	90.950	153.190	6431.13	4587.37	-3442.12	3710.33	1650334.41	14267275.15	39°17'21.508"N	80°57'53.811"W	5061.09	132.852	15.18	0.59	-15.17	
11578.00	90.400	153.800	6430.02	4681.10	-3526.23	3752.27	1650376.34	14267191.07	39°17'20.676"N	80°57'53.278"W	5149.16	133.221	0.87	-0.59	0.65	
11672.00	90.310	153.890	6429.44	4774.87	-3610.60	3793.71	1650417.76	14267106.73	39°17'19.842"N	80°57'52.751"W	5237.24	133.583	0.14	-0.10	0.10	
11767.00	90.370	150.770	6428.88	4869.41	-3694.73	3837.82	1650461.85	14267022.64	39°17'19.010"N	80°57'52.191"W	5327.27	133.912	3.28	0.06	-3.28	
11861.00	90.180	149.300	6428.43	4962.54	-3776.16	3884.77	1650508.78	14266941.24	39°17'18.205"N	80°57'51.594"W	5417.64	134.188	1.58	-0.20	-1.56	
11955.00	90.220	150.010	6428.10	5055.58	-3857.28	3932.25	1650556.25	14266860.15	39°17'17.403"N	80°57'50.991"W	5508.29	134.449	0.76	0.04	0.76	
12049.00	90.280	151.130	6427.69	5148.82	-3939.15	3978.44	1650602.42	14266778.32	39°17'16.594"N	80°57'50.404"W	5598.65	134.716	1.19	0.06	1.19	
12143.00	90.340	155.210	6427.18	5242.49	-4023.01	4020.86	1650644.82	14266694.49	39°17'15.765"N	80°57'49.865"W	5687.87	135.015	4.34	0.06	4.34	
12238.00	90.340	157.250	6426.62	5337.45	-4109.94	4059.15	1650683.09	14266607.59	39°17'14.906"N	80°57'49.378"W	5776.53	135.356	2.15	0.00	2.15	
12332.00	90.430	155.310	6425.98	5431.40	-4196.00	4096.96	1650720.89	14266521.57	39°17'14.055"N	80°57'48.898"W	5864.42	135.684	2.07	0.10	-2.06	
12426.00	89.910	150.980	6425.70	5525.07	-4279.84	4139.41	1650763.33	14266437.76	39°17'13.226"N	80°57'48.358"W	5954.14	135.956	4.64	-0.55	-4.61	
12521.00	89.970	152.970	6425.80	5619.56	-4363.70	4184.04	1650807.94	14266353.94	39°17'12.397"N	80°57'47.791"W	6045.50	136.204	2.10	0.06	2.09	
12615.00	89.910	154.640	6425.90	5713.33	-4448.04	4225.54	1650849.42	14266269.63	39°17'11.583"N	80°57'47.264"W	6135.16	136.469	1.78	-0.06	1.78	
12709.00	89.970	151.400	6426.00	5806.98	-4531.80	4268.18	1650892.04	14266185.91	39°17'10.735"N	80°57'46.722"W	6225.31	136.716	3.45	0.06	-3.45	

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12803.00	90.030	154.070	6426.00	5900.60	-4615.34	4311.23	1650935.08	14266102.39	39°17'09.909"N	80°57'46.175"W	6315.71	136.951	2.84	0.06	2.84	
12897.00	90.030	158.590	6425.95	5994.54	-4701.41	4348.96	1650972.79	14266016.36	39°17'09.058"N	80°57'45.695"W	6404.43	137.230	4.81	0.00	4.81	
12992.00	89.970	157.950	6425.95	6089.54	-4789.66	4384.13	1651007.95	14265928.14	39°17'08.186"N	80°57'45.248"W	6493.19	137.531	0.68	-0.06	-0.67	
13086.00	90.000	158.790	6425.98	6183.54	-4877.04	4418.78	1651042.59	14265840.80	39°17'07.322"N	80°57'44.808"W	6581.12	137.822	0.89	0.03	0.89	
13180.00	89.970	157.410	6426.00	6277.53	-4964.26	4453.84	1651077.63	14265753.62	39°17'06.460"N	80°57'44.363"W	6669.38	138.102	1.47	-0.03	-1.47	
13274.00	89.880	156.780	6426.12	6371.52	-5050.85	4490.43	1651114.20	14265667.06	39°17'05.604"N	80°57'43.898"W	6758.33	138.361	0.68	-0.10	-0.67	
13368.00	89.940	162.850	6426.27	6465.42	-5139.03	4522.85	1651146.61	14265578.91	39°17'04.732"N	80°57'43.486"W	6845.86	138.649	6.46	0.06	6.46	
13463.00	89.940	165.430	6426.37	6559.84	-5230.41	4548.81	1651172.56	14265487.58	39°17'03.829"N	80°57'43.156"W	6931.73	138.987	2.72	0.00	2.72	
13557.00	90.250	160.090	6426.22	6653.46	-5320.15	4576.66	1651200.40	14265397.87	39°17'02.942"N	80°57'42.803"W	7017.82	139.296	5.69	0.33	-5.68	
13651.00	90.000	157.310	6426.01	6747.44	-5407.72	4610.80	1651234.53	14265310.33	39°17'02.076"N	80°57'42.369"W	7106.54	139.548	2.97	-0.27	-2.96	
13745.00	89.970	157.380	6426.03	6841.44	-5494.47	4647.01	1651270.72	14265223.62	39°17'01.219"N	80°57'41.909"W	7196.10	139.777	0.08	-0.03	0.07	
13839.00	89.970	157.440	6426.08	6935.44	-5581.26	4683.12	1651306.81	14265136.87	39°17'00.361"N	80°57'41.450"W	7285.74	140.001	0.06	0.00	0.06	
13934.00	89.850	158.760	6426.23	7030.43	-5669.40	4718.55	1651342.23	14265048.76	39°16'59.490"N	80°57'41.000"W	7376.09	140.230	1.40	-0.13	1.39	
14028.00	89.970	157.900	6426.38	7124.43	-5756.75	4753.26	1651376.93	14264961.44	39°16'58.626"N	80°57'40.559"W	7465.50	140.454	0.92	0.13	-0.91	
14122.00	89.910	158.400	6426.48	7218.43	-5844.00	4788.24	1651411.90	14264874.23	39°16'57.764"N	80°57'40.115"W	7555.11	140.671	0.54	-0.06	0.53	
14217.00	89.970	157.900	6426.58	7313.43	-5932.18	4823.60	1651447.24	14264785.09	39°16'56.892"N	80°57'39.665"W	7645.77	140.885	0.53	0.06	-0.53	
14311.00	89.850	154.400	6426.73	7407.37	-6018.14	4861.60	1651485.23	14264700.16	39°16'56.042"N	80°57'39.183"W	7736.48	141.068	3.73	-0.13	-3.72	
14405.00	90.150	160.030	6426.73	7501.33	-6104.77	4897.99	1651521.60	14264613.57	39°16'55.186"N	80°57'38.720"W	7826.78	141.259	6.00	0.32	5.99	
14499.00	89.850	156.030	6426.73	7595.31	-6191.92	4933.15	1651556.75	14264526.45	39°16'54.324"N	80°57'38.274"W	7916.81	141.455	4.27	-0.32	-4.26	
14593.00	90.060	152.610	6426.80	7689.11	-6278.62	4973.88	1651597.46	14264441.78	39°16'53.487"N	80°57'37.756"W	8008.46	141.605	3.65	0.22	-3.64	
14688.00	89.970	153.660	6426.78	7783.79	-6361.37	5016.81	1651640.37	14264357.07	39°16'52.649"N	80°57'37.211"W	8101.57	141.739	1.11	-0.09	1.11	
14782.00	89.660	156.670	6427.08	7877.68	-6446.67	5056.28	1651679.83	14264271.80	39°16'51.806"N	80°57'36.709"W	8193.02	141.892	3.22	-0.33	3.20	
14876.00	89.480	163.740	6427.79	7971.54	-6535.05	5088.10	1651711.63	14264183.45	39°16'50.932"N	80°57'36.305"W	8282.25	142.096	7.52	-0.19	7.52	
14937.00	89.510	165.450	6428.32	8032.11	-6593.86	5104.30	1651727.83	14264124.67	39°16'50.351"N	80°57'36.100"W	8338.63	142.257	2.80	0.05	2.80	
14961.00	89.510	165.450	6428.53	8055.90	-6617.09	5110.33	1651733.85	14264101.45	39°16'50.121"N	80°57'36.023"W	8360.70	142.321	0.00	0.00	0.00	Projected MD at TD: 14961'

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Actual Wellpath Report

Piper Unit 3H AWP Proj: 14961'

REFERENCE WELLPATH IDENTIFICATION

Operator	**ANTERO RESOURCES CORPORATION**	Slot	**Slot #10**
Area	**Ritchie County, WV**	Well	**Piper Unit 3H**
Field	**Ritchie**	Wellbore	**Piper Unit 3H AWB**
Facility	**Noland Pad**		

HOLE & CASING SECTIONS - Ref Wellbore: Piper Unit 3H AWB Ref Wellpath: Piper Unit 3H AWP Proj: 14961'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
20in Conductor	25.00	65.00	40.00	25.00	65.00	0.00	0.00	0.00	0.00
17.5in Open Hole	65.00	366.00	301.00	65.00	366.00	0.00	0.00	0.80	0.15
13.375in Casing Surface	25.00	366.00	341.00	25.00	366.00	0.00	0.00	0.80	0.15
12.25in Open Hole	366.00	2615.00	2249.00	366.00	2547.48	0.80	0.15	244.67	424.09
9.625in Casing Intermediate	25.00	2615.00	2590.00	25.00	2547.48	0.00	0.00	244.67	424.09
8.75in Open Hole	2615.00	6062.00	3447.00	2547.48	5654.03	244.67	424.09	996.38	1701.43
8.5in Open Hole	6062.00	14961.00	8899.00	5654.03	6428.53	996.38	1701.43	-6617.09	5110.33
5.5in Casing Production	25.00	14961.00	14936.00	25.00	6428.53	0.00	0.00	-6617.09	5110.33

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Piper Unit 3H POE Rev-2	6401.00	686.80	2124.37	**1648749.10**	**14271402.41**	39°18'02.322"N	80°58'13.965"W	point
Piper Unit 3H BHL Rev-2	6430.00	-6656.48	5119.76	**1651743.28**	**14264052.08**	39°16'49.633"N	80°57'35.903"W	point
Piper Unit 3H LP Rev-1	6430.00	520.13	2192.27	1648816.97	14271235.80	39°18'00.675"N	80°58'13.102"W	point
Piper Unit 3H 25' L/R Hard Line	6512.00	-3073.18	3656.01	**1650280.13**	**14267643.94**	39°17'25.154"N	80°57'54.500"W	rectangle

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Piper Unit 3H AWP Proj: 14961'

REFERENCE WELLPATH IDENTIFICATION			
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Area	**Ritchie County, WV**	Well	**Piper Unit 3H**
Field	**Ritchie**	Wellbore	**Piper Unit 3H AWB**
Facility	**Noland Pad**		

WELLPATH COMPOSITION - Ref Wellbore: Piper Unit 3H AWB Ref Wellpath: Piper Unit 3H AWP Proj: 14961'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	5884.00	Gyrodata standard - Continuous gyro	03_Gyrodata MS Gyro <8-3/4">(100'-5872')	Piper Unit 3H AWB
5884.00	14937.00	BHI AutoTrak Curve (Short)	04_BHI AT Curve <8-1/2">(5884')(6015'-14937')	Piper Unit 3H AWB
14937.00	14961.00	Blind Drilling (std)	Projection to bit	Piper Unit 3H AWB

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Piper Unit 3H AWP Proj: 14961'

REFERENCE WELLPATH IDENTIFICATION			
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Area	**Ritchie County, WV**	Well	**Piper Unit 3H**
Field	**Ritchie**	Wellbore	**Piper Unit 3H AWB**
Facility	**Noland Pad**		

COMMENTS

Wellpath general comments
API: 47-085-10296-0000
BHI Job #: 8506917
Rig: Patterson 343
Duration: 04/14/2017-04/17/2017
Gyrodata MS Gyro <8-3/4">(100'-5872')
BHI AT Curve <8-1/2"> (5884')(6015'-14937')
Middlesex: 6763' MD
Burket: 6950' MD
Tully: 7016' MD
Marcellus POE: 7067' MD
Projected MD at TD: 14961'

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/11/2017
Job End Date:	10/15/2017
State:	West Virginia
County:	Ritchie
API Number:	47-085-10296-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Piper 3H
Latitude:	39.29876000
Longitude:	-80.97805278
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,434
Total Base Water Volume (gal):	13,987,943
Total Base Non Water Volume:	0

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FracFocus
Chemical Disclosure Registry

GROUNDWATER
PROTECTION COUNCIL

Interstate Oil & Gas Compact Commission

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Fresh Water	Operator	Base Fluid					
			Water	7732-18-5	100.00000	88.04521	Density = 8.330
Ingredients	Listed Above	Listed Above					
			Water	7732-18-5	100.00000	0.12550	

SP BREAKER	Halliburton	Breaker					
				Listed Below			
FR-76	Halliburton	Friction Reducer					
				Listed Below			
HAI-OS ACID INHIBITOR	Halliburton	Corrosion Inhibitor					
				Listed Below			
WG-36 GELLING AGENT	Halliburton	Gelling Agent					
				Listed Below			
SAND-COMMON WHITE-100 MESH, SSA-2, BULK (100003676)	Halliburton	Proppant					
				Listed Below			
LP-70	Halliburton	Scale Inhibitor					
				Listed Below			
MC B-8614	Halliburton	Biocide					
				Listed Below			
SAND-PREMIUM WHITE-30/50, BULK	Halliburton	Proppant					
				Listed Below			

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HYDROCHLORIC ACID	Halliburton	Solvent					
				Listed Below			
SAND-PREMIUM WHITE-40/70, BULK	Halliburton	Proppant					
				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	11.77685	
			Inorganic salt	Proprietary	30.00000	0.02164	
			Hydrotreated light petroleum distillate	64742-47-8	30.00000	0.02164	
			Acrylamide acrylate copolymer	Proprietary	30.00000	0.02164	Denise Tuck, Halliburton, 3000 N. Sam Houston Pkwy E., Houston, TX 77032, 281-871-6226
			Guar gum	9000-30-0	100.00000	0.01577	
			Ethylene Glycol	107-21-1	60.00000	0.00849	
			Hydrochloric acid	7647-01-0	7.50000	0.00498	
			Glutaraldehyde	111-30-8	30.00000	0.00266	
			Neutralized Polyacrylic Emulsion	Proprietary	10.00000	0.00141	
			Quaternary ammonium compounds, benzyl-C12-16-alkyldimethyl chlorides	68424-85-1	5.00000	0.00044	
			Sodium persulfate	7775-27-1	100.00000	0.00040	
			Methanol	67-56-1	60.00000	0.00016	
			Ethanol	64-17-5	1.00000	0.00009	
			Fatty acids, tall oil	Proprietary	30.00000	0.00008	

			Reaction product of acetophenone, formaldehyde, thiourea and oleic acid in dimethyl formamide	68527-49-1	30.00000	0.00008	
			Ethoxylated alcohols	Proprietary	30.00000	0.00008	
			Olefins	Proprietary	5.00000	0.00003	
			Propargyl alcohol	107-19-7	10.00000	0.00003	
			Phosphoric acid	7664-38-2	0.10000	0.00001	
			Sodium sulfate	7757-82-6	0.10000	0.00000	

* Total Water Volume sources may include various types of water including fresh water, produced water, and recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
*** If you are calculating a percentage of total ingredients do not add the water volume below the green line

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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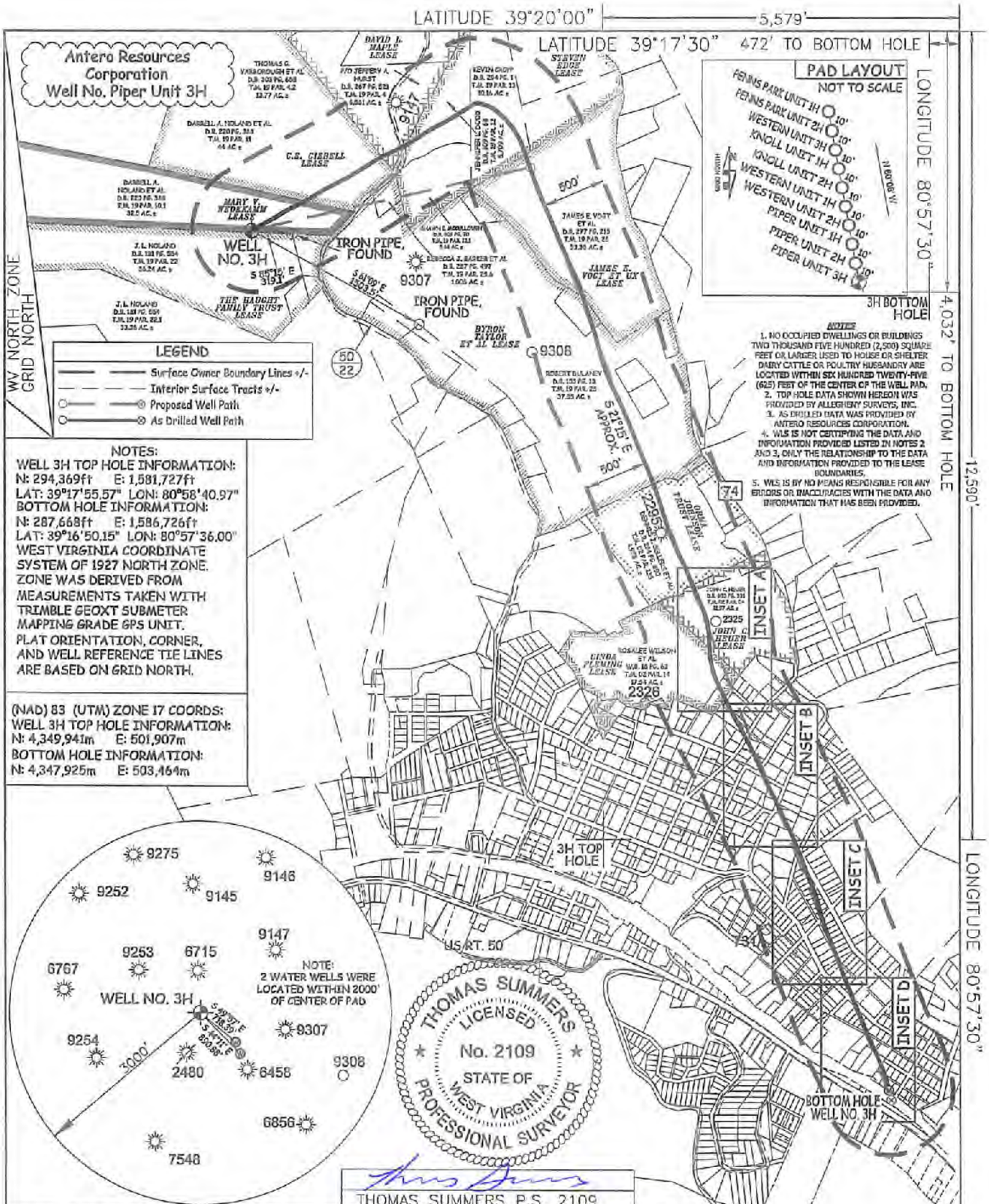

THOMAS SUMMERS P.S. 2109

JOB # 16-005WA
DRAWING # PIPER3HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

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

WILLOW LAND SURVEYING PLLC
266 HUSHERS RUN RD PENNSBORO
WEST VIRGINIA 26415

DATE 02/01/18
OPERATOR'S WELL# PIPER UNIT 3H

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

API WELL #
47 — 085 — 10296
STATE COUNTY PERMIT

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

LOCATION: ELEVATION 1,143' AS DRILLED WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE PENNSBORO 7.5' DISTRICT CLAY COUNTY RITCHIE
SURFACE OWNER DARRELL A. NOLAND ET AL ACREAGE 32.5 ACRES +/-
OIL & GAS ROYALTY OWNER SEE ATTACHED PAGES FOR LEASE INFORMATION LEASE ACREAGE SEE ATTACHED PAGES

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 6,429' TVD 14,961 MD

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

FORM WW-6

COUNTY NAME PERMIT

INSET A

Antero Resources Corporation
Well No. Piper Unit 3H

WV NORTH ZONE GRID NORTH

S 21°15' E APPROX.

ORMA JOHNSON TRUST LEASE
8-2-135

JOHN C. HEUER LEASE
8-2-4

CINDA FLEMING LEASE
8-2-14

8-2-15
ROBERT WHITEHAIR LEASE

ROBERT WHITEHAIR LEASE
8-2-16

8-2-48

8-2-14.1

8-2-49
LARRY HORNER LEASE

8-2-50
LARRY JR. HORNER LEASE

8-2-45
BETTY R. HORNER LEASE

8-2-14.2

KENNETH E. SELLERS ET UX LEASE

8-2-51
MICHAEL J. SHEPHERD LEASE

FORDICE STREET

8-2-46

8-2-47

8-2-44

8-2-86

JACKLYN C. PERKINS LEASE

WILLOW
LAND SURVEYING PLLC

P.O. BOX 17
PENNSBORO, WV 26415
304-659-1717

SCALE: 1-INCH = 100-FEET

0 100 200 300

FILE: 16-005WA
JOB: PIPER3H INSETA AD
DRAFTED BY: T.B.S. 02/01/18

LEGEND
Piper 3H Lateral
Interior Surface Tracts +/-

INSET B

Antero Resources Corporation
Well No. Piper Unit 3H

WV NORTH ZONE GRID NORTH

LARRY HORNER LEASE 8-2-46
8-2-47
8-2-86
JACKLYN C. PERKINS LEASE
MOUNTAIN DRIVE
CONWAY DRIVE
KENNETH E. SELLERS ET UX LEASE
RUTH M. HUFFORD ET AL LEASE
8-2-85
8-2-44
8-2-82.1
JON L. BONNELL ET UX LEASE
8-2-84
LISA J. YANERO LEASE
8-2-87
LETA V. BENNETT ET AL LEASE
8-2-83.1
JON LYN BONNELL ET UX LEASE
8-2-116
ALLEY
FREAM STREET
RUSSELL I. GRAY LEASE
STEPHEN C. DOAK ET UX LEASE
8-2-115
8-2-114
8-2-83
STEVEN F. REED ET UX LEASE
8-2-117
AMBER DAWN STULL LEASE
8-2-113
STATE ROUTE 74
8-2-112
S 21°15' E APPROX.
8-5-1
WILLIAM R. CAMPBELL JR. ET AL LEASE
FREAM STREET
GREY STREET
RONALD D. INGRAM LEASE
8-5-2
LESLEY A. HINTON ET AL LEASE
8-4-43
8-5-3
CHARLES R. COLLINS LEASE
8-5-12
EDWIN J. MCKINNEY LEASE
DONNIE LEGGETT ET UX LEASE
8-5-17
8-5-5
FREAM STREET
JAMES SHEPLER ET UX LEASE
8-5-13
8-5-15
DENNIS J. STULL ET UX LEASE
8-5-16
JAMES SHEPLER ET UX LEASE
8-5-14
8-5-21
MOLE HILL LLC. LEASE
8-5-22.1
8-5-18
8-5-23
LESTER L. JEWELL ET UX LEASE
8-5-22
8-5-24
RAYMOND AVENUE
MOLE HILL LLC. LEASE
8-5-29
GREY STREET
8-5-32.1
8-5-30
8-5-31
ROLAND L. BELL LEASE
8-5-24.1
LARRY HORNER ET UX LEASE
LOCUST STREET
CANDICE R. CAMACHE LEASE
8-5-32

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LEGEND
Piper 3H Lateral
Interior Surface Tracts +/-

INSET C

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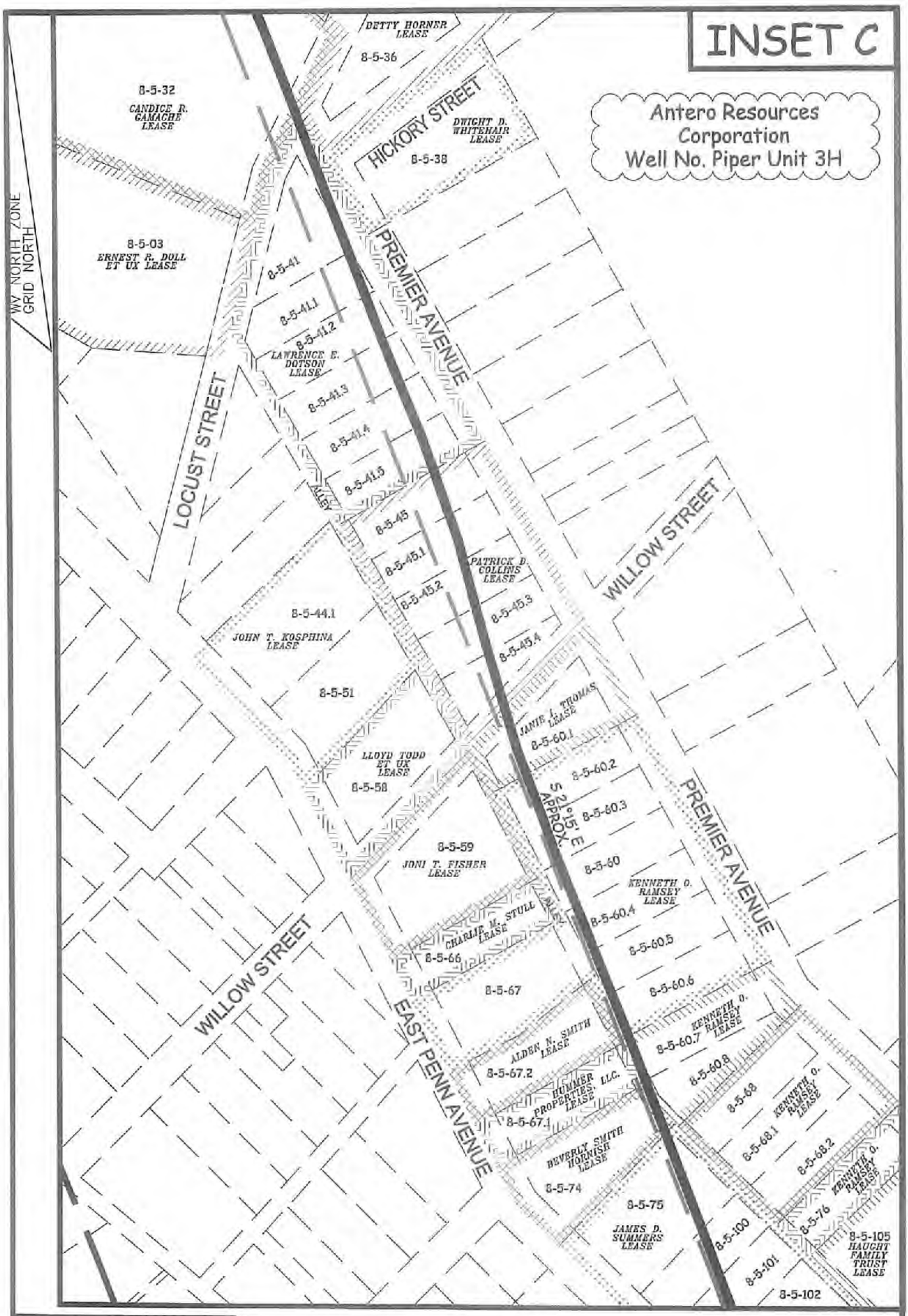
Well No. Piper Unit 3H



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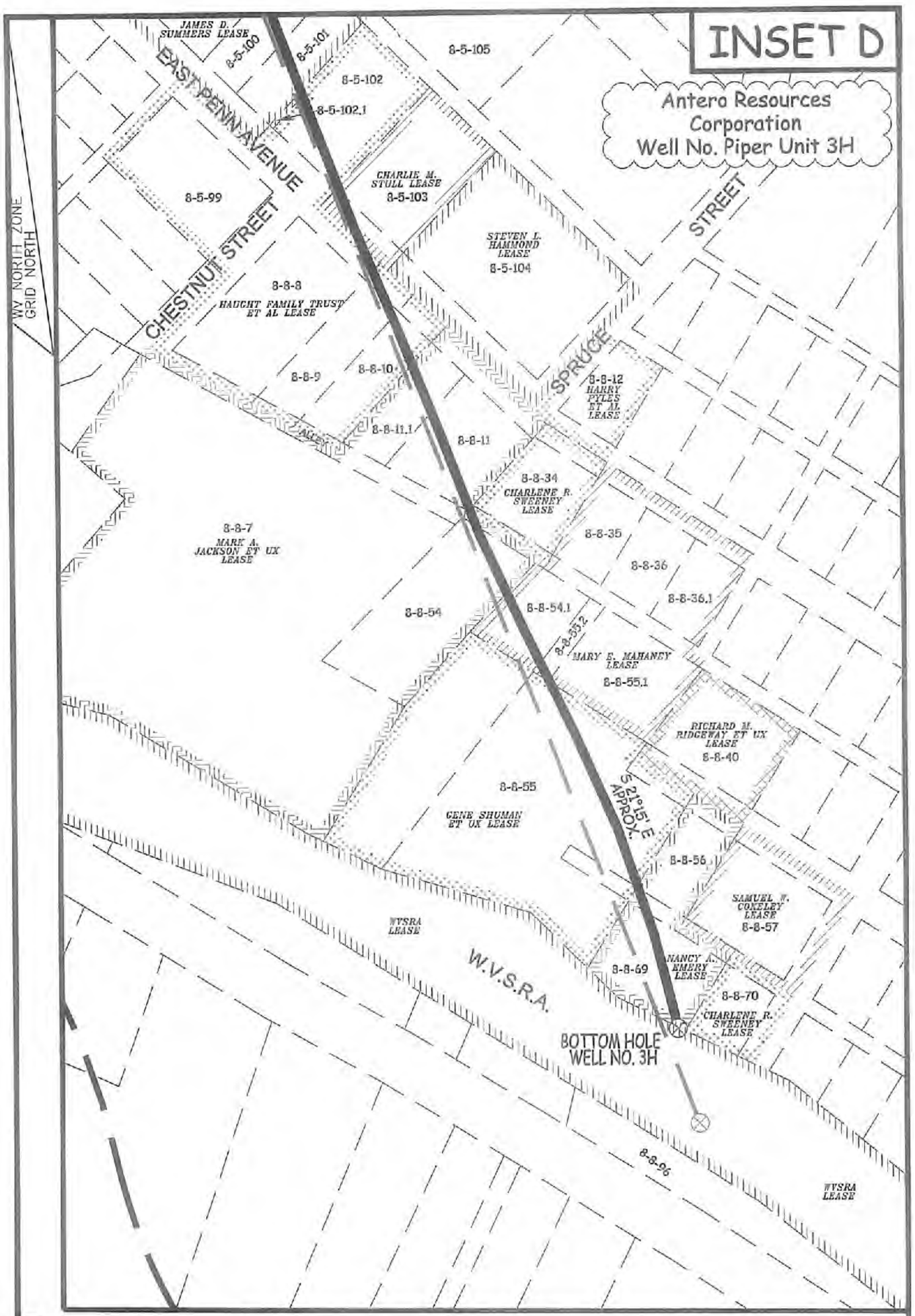

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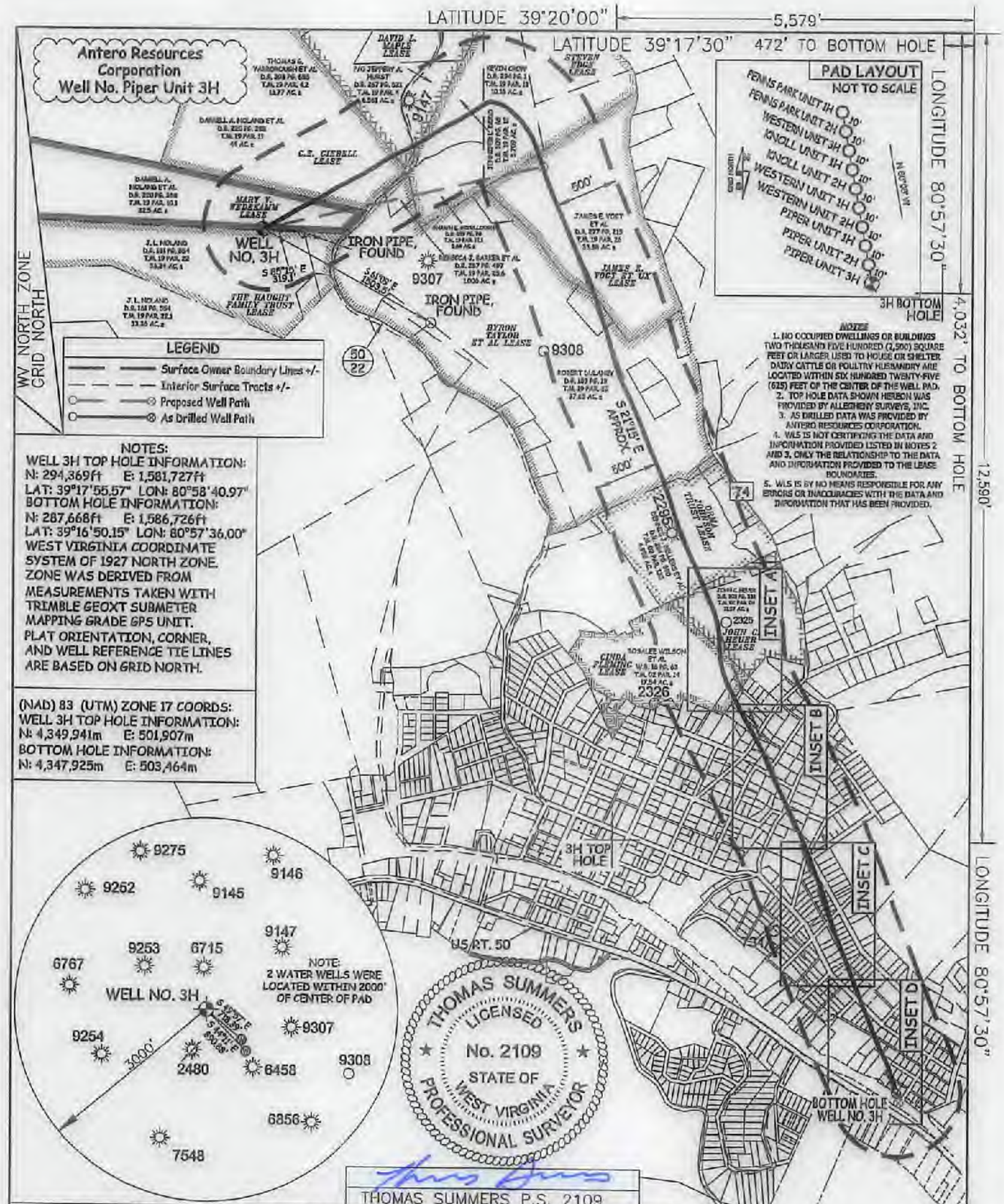

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
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API WELL # 47 — 085 — 10296
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GRID NORTH

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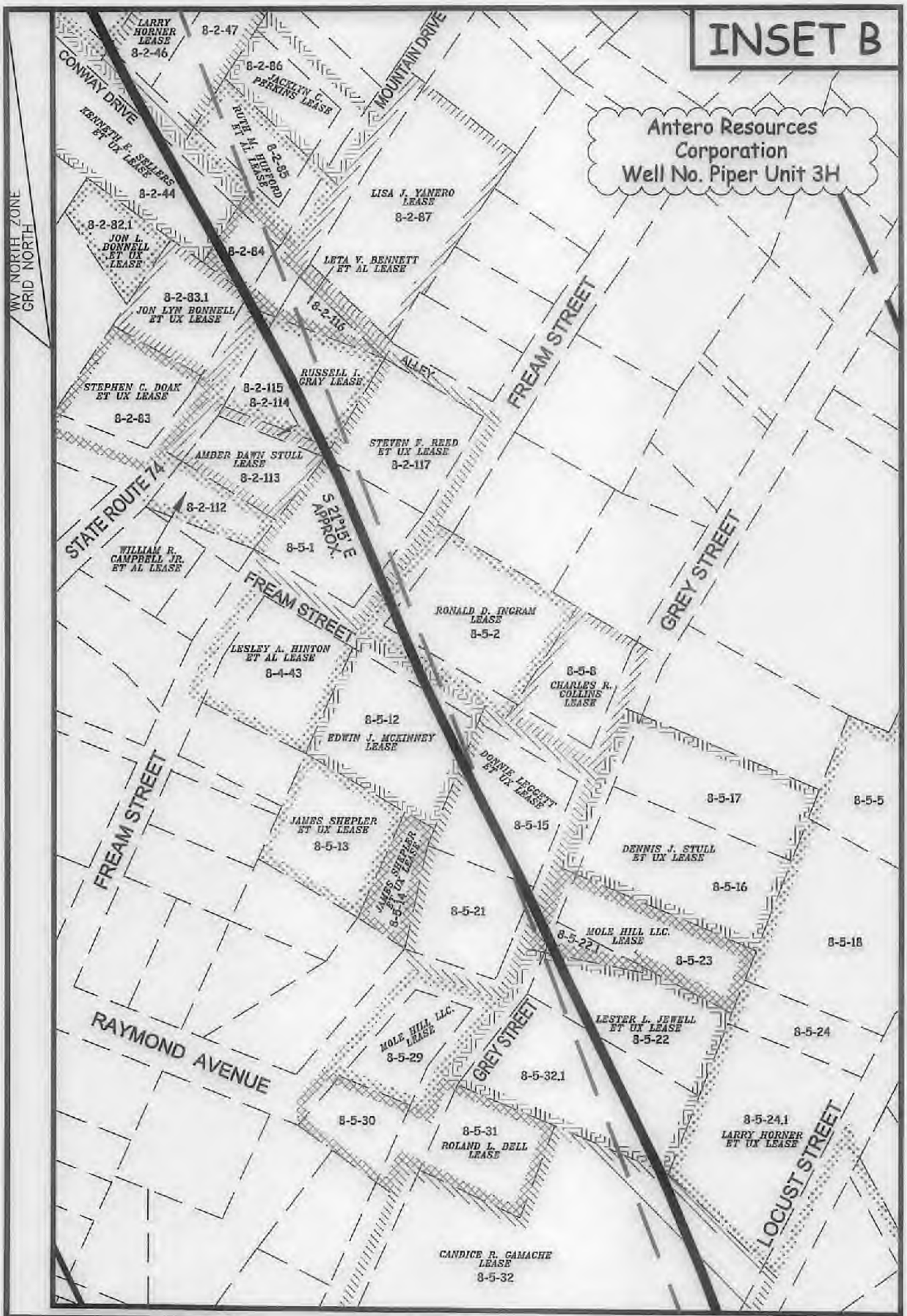
Interior Surface Tracts +/-



WILLOW
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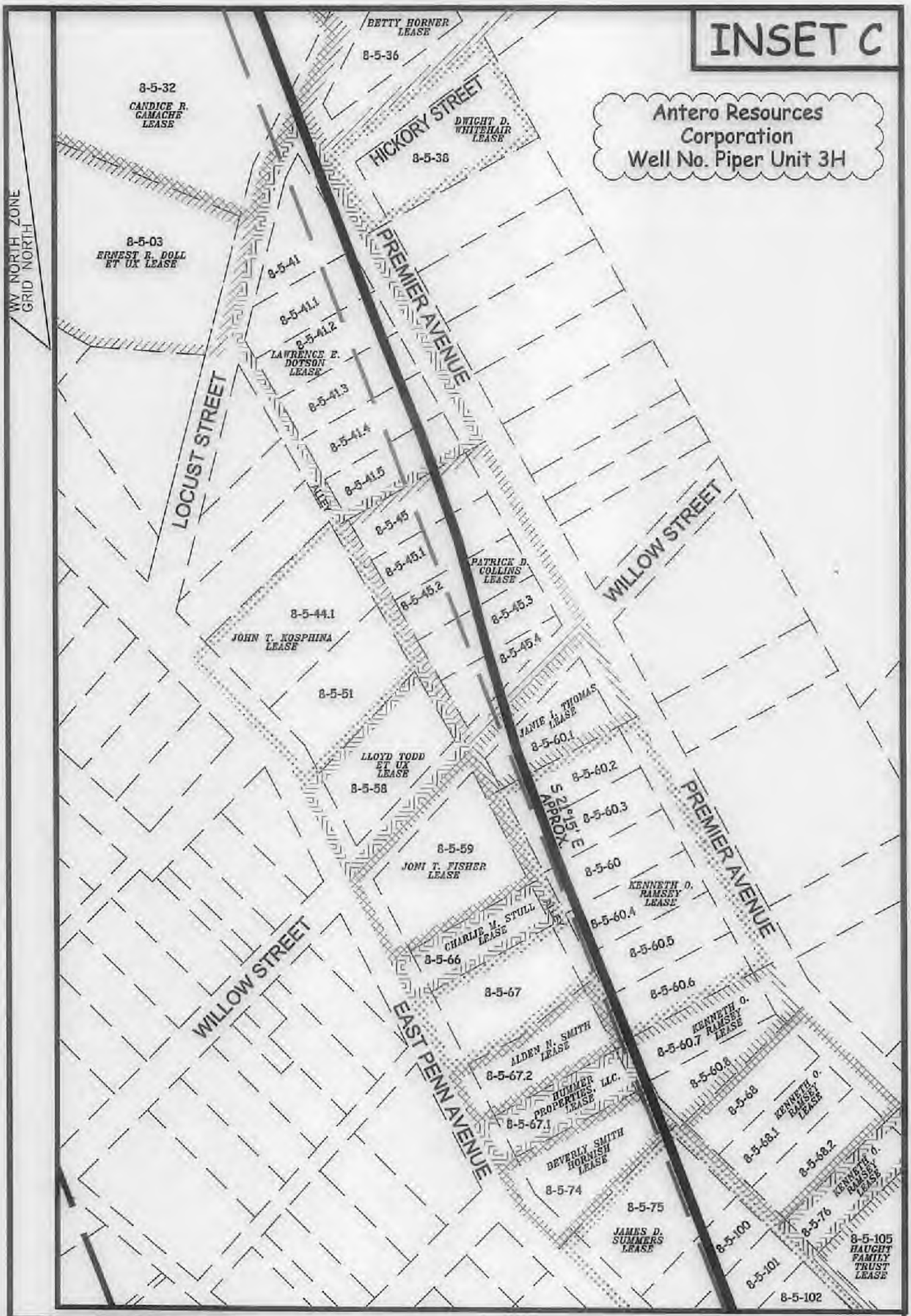
LEGEND
Piper 3H Lateral
Interior Surface Tracts +/-

INSET C

Antero Resources Corporation
Well No. Piper Unit 3H



WILLOW
• LAND SURVEYING PLLC •

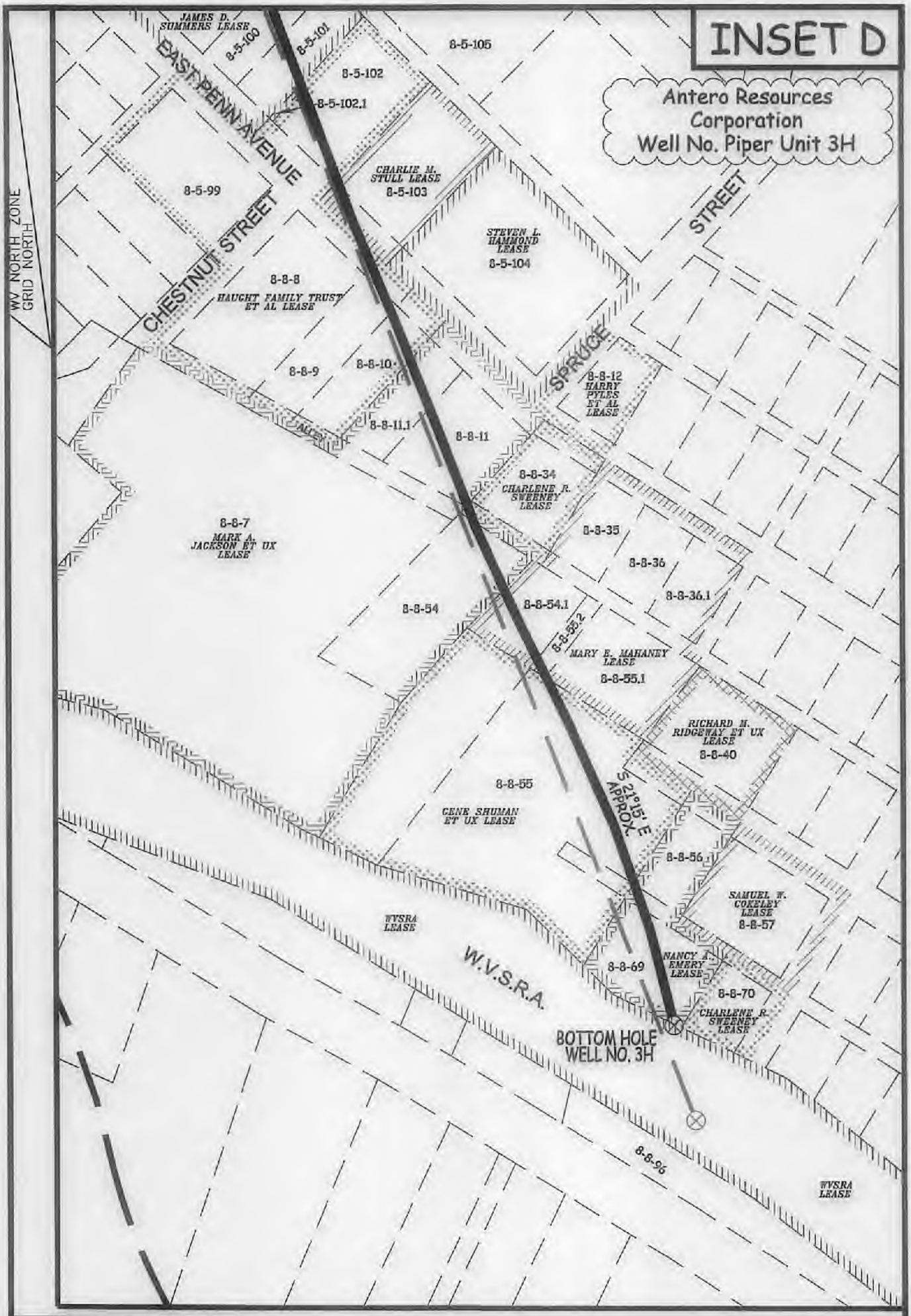
P.O. BOX 17
PENNSBORO, WV 26415
304-659-1717

SCALE: 1-INCH = 100-FEET

0 100 200 300

FILE: 16-005WA
JOB: PIPER3H INSETC AD
DRAFTED BY: T.B.S. 02/01/18

LEGEND
Piper 3H Lateral
Interior Surface Tracts +/-



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