Reviewed
10/6/18

WR-35
Rev. 8/23/13

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

API 47 - 017 - 06480 County Doddridge District Grant
Quad West Union 7.5' Pad Name Melody Pad Field/Pool Name -----
Farm name Melody Brown, et al Well Number Kreitler 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 4356581m	Easting 520759m
Landing Point of Curve	Northing 4356680.17m	Easting 520778.95m
Bottom Hole	Northing 4358415m	Easting 520093m

Elevation (ft) 1135' 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 3/25/2014 Date drilling commenced 4/13/2016 Date drilling ceased 7/8/2016
Date completion activities began 9/25/2017 Date completion activities ceased 11/26/2017
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 31', 36', 45', 46' Open mine(s) (Y/N) depths No
Salt water depth(s) ft 865', 1391', 1509' Void(s) encountered (Y/N) depths No
Coal depth(s) ft 1821' Cavern(s) encountered (Y/N) depths No
Is coal being mined in area (Y/N) No

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API 47- 017 - 06480 Farm name Melody Brown, et al Well number Kreitler 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"	40'	New	94#, H-40	N/A	Y
Surface	17-1/2"	13-3/8"	542'	New	48#, H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2489'	New	36#, J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	13492'	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^3/sks)	Volume (ft^3)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	304 sx	15.6	1.18		0'	8 Hrs.
Surface	Class A	670 sx	15.6	1.19		0'	8 Hrs.
Coal							
Intermediate 1	Class A	937 sx	15.6	1.18		0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	1129 sx (Lead) 1030 sx (Tail)	14.44 (Lead), 15.21 (Tail)	(Lead), (Tail)		~500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 15500' MD, 7200' TVD (BHL), 6898' (Deepest Point Drilled) Loggers TD (ft) 15500' MD
Deepest formation penetrated Marcellus Plug back TD (ft) N/A
Plug back procedure N/A

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Kick off depth (ft) 6192'

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

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

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING
Conductor - 0
Surface - 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface
Intermediate - 1 above float joint, 1 above float collar, 1 every 4th joint to surface
Production - 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

WAS WELL COMPLETED AS SHOT HOLE ☐ Yes ■ No DETAILS

WAS WELL COMPLETED OPEN HOLE? ☐ Yes ■ No DETAILS

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

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PERFORATION RECORD

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

***PLEASE SEE ATTACHED EXHIBIT 1**

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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

***PLEASE SEE ATTACHED EXHIBIT 2**

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Please insert additional pages as applicable.

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API 47- 017 - 06480 Farm name Melody Brown, et al Well number Kreitler Unit 2H

PRODUCING FORMATION(S)	DEPTHS			
Marcellus	6860' (TOP)	TVD	7141' (TOP)	MD

Please insert additional pages as applicable.

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

SHUT-IN PRESSURE Surface 2950 psi Bottom Hole — psi DURATION OF TEST — hrs

OPEN FLOW	Gas	Oil	NGL	Water	GAS MEASURED BY
	13301 mcfpd	25.45 bpd	--- bpd	0 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 Nine Energy
Address 125 Museum Road City Washington State PA Zip 15301

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

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

Please insert additional pages as applicable.

Completed by Mallory Stanton Telephone 303-357-7182
Signature Title Permitting Supervisor Date 4/23/2018

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

API 47-017-06480 Farm Name Melody Brown et al Well Number Kreitler Unit 2H					
EXHIBIT 1					
Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	9/26/2017	13206	13375	60	Marcellus
2	9/26/2017	13004	13174	60	Marcellus
3	9/26/2017	12803	12972	60	Marcellus
4	9/26/2017	12601	12771	60	Marcellus
5	9/27/2017	12400	12569	60	Marcellus
6	9/27/2017	12198	12368	60	Marcellus
7	9/27/2017	11997	12167	60	Marcellus
8	9/27/2017	11795	11965	60	Marcellus
9	9/27/2017	11594	11764	60	Marcellus
10	9/28/2017	11392	11562	60	Marcellus
11	9/28/2017	11191	11361	60	Marcellus
12	9/28/2017	10989	11159	60	Marcellus
13	9/29/2017	10788	10958	60	Marcellus
14	9/29/2017	10586	10756	60	Marcellus
15	9/29/2017	10385	10555	60	Marcellus
16	9/29/2017	10183	10353	60	Marcellus
17	9/30/2017	9982	10152	60	Marcellus
18	9/30/2017	9780	9950	60	Marcellus
19	9/30/2017	9579	9749	60	Marcellus
20	9/30/2017	9377	9547	60	Marcellus
21	9/30/2017	9176	9346	60	Marcellus
22	9/30/2017	8974	9144	60	Marcellus
23	10/1/2017	8773	8943	60	Marcellus
24	10/1/2017	8571	8741	60	Marcellus
25	10/1/2017	8370	8540	60	Marcellus
26	10/1/2017	8169	8338	60	Marcellus
27	10/1/2017	7967	8137	60	Marcellus
28	10/2/2017	7766	7935	60	Marcellus
29	10/2/2017	7564	7734	60	Marcellus
30	10/2/2017	7363	7532	60	Marcellus
31	10/2/2017	7161	7331	60	Marcellus

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API 47-017-06480 Farm Name Melody Brown et al Well Number Kreitler Unit 2H

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	9/26/2017	78.1	7268.572	7073	5200	422470	8997.786	N/A
2	9/26/2017	77.618	7438.419	6200	4898	420700	8495.357	N/A
3	9/26/2017	75.7566	7492.13	6230	5147	421520	8810	N/A
4	9/26/2017	73.912	7011.851	5964	5339	420860	8681	N/A
5	9/27/2017	75.7149	7136.774	5893	4307	420090	8648	N/A
6	9/27/2017	80.0776	7542.066	6213	4919	419870	8473.119	N/A
7	9/27/2017	79.8992	7479.999	6101	4408	419290	8491.476	N/A
8	9/27/2017	78.4229	7399.223	5822	4486	420490	8504	N/A
9	9/27/2017	78.9304	7621.725	6002	4622	419880	8540	N/A
10	9/28/2017	78.7522	7591.583	5976	5114	419350	8470	N/A
11	9/28/2017	73.9458	7528.331	6027	5147	420250	8496.476	N/A
12	9/28/2017	70.8	7423	5824	5630	419190	10571.71	N/A
13	9/29/2017	75.6003	7398.569	5967	4196	418470	8443	N/A
14	9/29/2017	75.8111	7389.841	6212	5454	420650	8480.762	N/A
15	9/29/2017	72.8626	7636.28	6162	5067	348580	8431.548	N/A
16	9/29/2017	78.1	7337.069	5955	5870	420450	8655	N/A
17	9/30/2017	77.2853	7645.34	6119	5457	420050	8466	N/A
18	9/30/2017	77.6273	7181.065	6108	4361	419950	8381	N/A
19	9/30/2017	78.2136	7379.047	5945	5334	418830	8476.595	N/A
20	9/30/2017	78.2453	7120.545	6100	5702	421250	8317.929	N/A
21	9/30/2017	69.6029	7781.935	5948	5412	420200	10027.24	N/A
22	9/30/2017	74.3011	7279.846	6312	5127	419910	8400	N/A
23	10/1/2017	77.6214	7082.454	5854	4268	420170	8375	N/A
24	10/1/2017	77.3333	7133.189	5918	5028	420030	8774.048	N/A
25	10/1/2017	73.3591	7424.459	5975	4760	379400	8454.667	N/A
26	10/1/2017	67.6389	7554.489	5612	4387	420100	9608.262	N/A
27	10/1/2017	76.7896	7082.139	5907	4159	415650	8197	N/A
28	10/2/2017	74.2205	7052.094	5602	4289	420100	8538	N/A
29	10/2/2017	71.7406	7291.783	5852	5197	420950	9861	N/A
30	10/2/2017	75.8339	7235.738	5861	4036	419700	8327	N/A
31	10/2/2017	74.859	6743.861	6042	3912	420930	8209	N/A
	AVG=	75.8	7,345	6,025	4,878	12,909,330	269,602	TOTAL

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API 47-017-06480 Farm Name Melody Brown et al Well Number Kreitler Unit 2H

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	31'	N/A	N/A	N/A
Fresh Water	36'	N/A	N/A	N/A
Fresh Water	45'	N/A	N/A	N/A
Fresh Water	46'	N/A	N/A	N/A
Silt	0	100	0	81
Sandstone	100	300	81	281
Siltstone (tr coal)	300	420	281	401
Silty Sandstone	420	600	401	581
Sandy siltstone	600	780	581	761
Limestone	780	800	761	781
Sandy siltstone	800	880	781	861
Limey Siltstone	880	980	861	961
Sandy shale	980	1,300	961	1,281
Sandstone	1,300	1,420	1,281	1,401
Sandy shale	1,420	1,580	1,401	1,561
Silty Sandstone (tr coal)	1,580	1,780	1,561	1,761
Sandstone	1,780	1,840	1,761	1,821
Coal	1,840	2,020	1,821	2,001
Limey Siltstone	2,020	2,087	2,001	2,089
Big Lime	2,087	2,634	2,089	2,637
Gantz Sand	2,634	2,769	2,637	2,772
Fifty Foot Sandstone	2,769	2,852	2,772	2,855
Gordon	2,852	3,161	2,855	3,164
Fifth Sandstone	3,161	3,183	3,164	3,186
Bayard	3,183	3,984	3,186	3,987
Speechley	3,984	4,205	3,987	4,208
Baltown	4,205	4,706	4,208	4,717
Bradford	4,706	5,166	4,717	5,190
Benson	5,166	5,442	5,190	5,474
Alexander	5,442	5,608	5,474	5,644
Elk	5,608	6,124	5,644	6,174
Rhinestreet	6,124	6,457	6,174	6,521
Sycamore	6,471	6,646	6,521	6,734
Middlesex	6,646	6,780	6,734	6,945
Burkett	6,780	6,810	6,945	7,004
Tully	6,810	6,860	7,004	7,122
Marcellus	6,860	NA	7,091	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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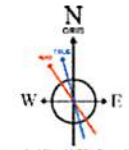
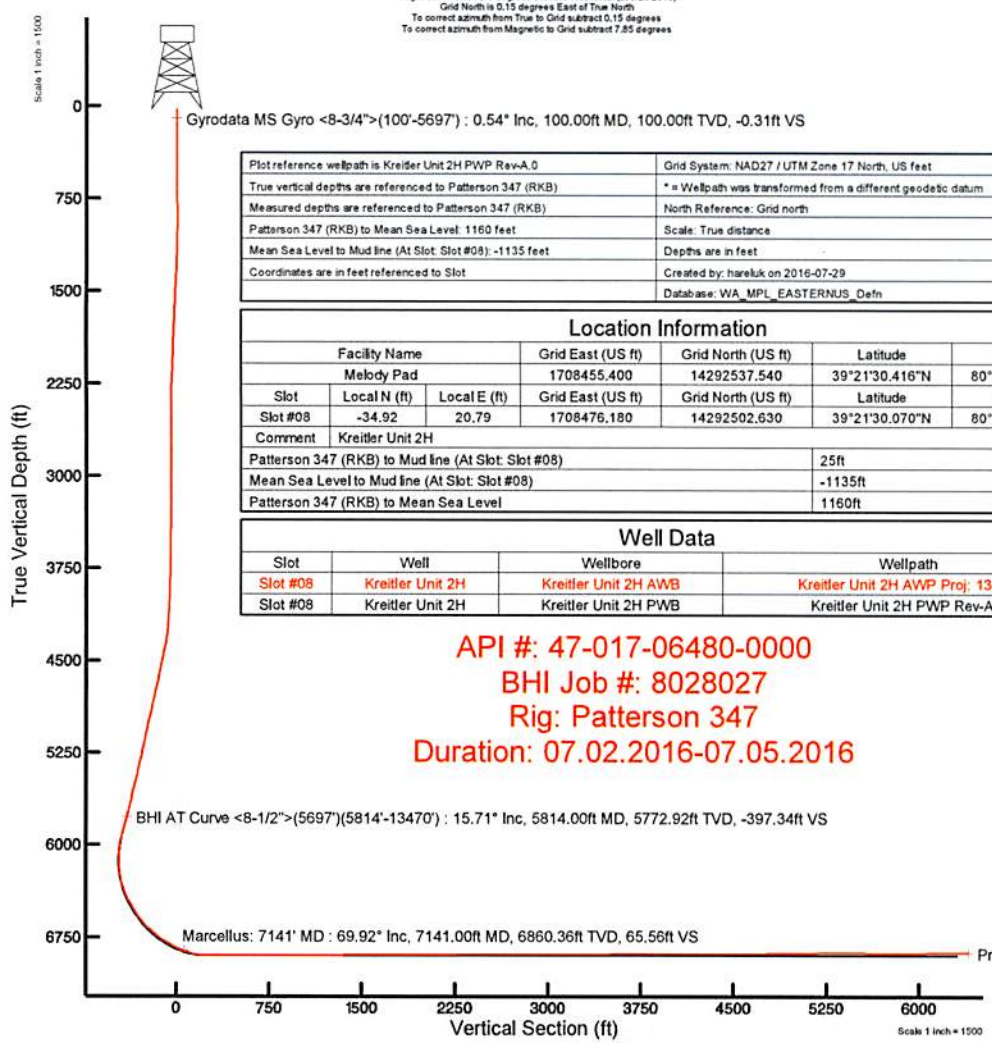
ANTERO RESOURCES CORPORATION

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

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



User specified Dip: 68.77° Field: 52299 nT
Magnetic North is 7.70 degrees West of True North (at 6/29/2016)
Grid North is 0.15 degrees East of True North
To correct azimuth from True to Grid subtract 0.15 degrees
To correct azimuth from Magnetic to Grid subtract 7.85 degrees



Plot reference wellpath is Kreitler Unit 2H PWP Rev-A.0	Grid System: NAD27 / UTM Zone 17 North, US feet
True vertical depths are referenced to Patterson 347 (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to Patterson 347 (RKB)	North Reference: Grid north
Patterson 347 (RKB) to Mean Sea Level: 1160 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: Slot #08): -1135 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: hareluk on 2016-07-29
	Database: WA_MPL_EASTERNUS_Defn

Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Melody Pad			1708455.400	14292537.540	39°21'30.416"N	80°45'33.453"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot #08	-34.92	20.79	1708476.180	14292502.630	39°21'30.070"N	80°45'33.190"W
Comment	Kreitler Unit 2H					

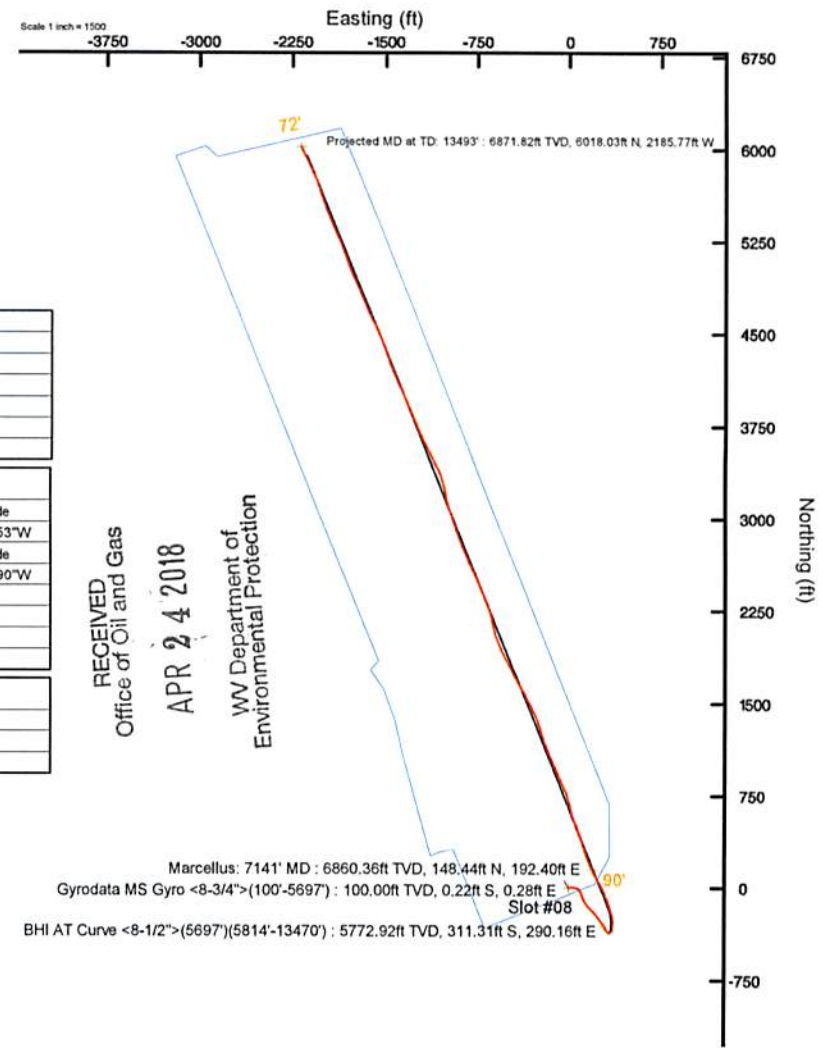
Patterson 347 (RKB) to Mud line (At Slot: Slot #08)	25ft
Mean Sea Level to Mud line (At Slot: Slot #08)	-1135ft
Patterson 347 (RKB) to Mean Sea Level	1160ft

Well Data

Slot	Well	Wellbore	Wellpath
Slot #08	Kreitler Unit 2H	Kreitler Unit 2H AWB	Kreitler Unit 2H AWP Proj: 13493'
Slot #08	Kreitler Unit 2H	Kreitler Unit 2H PWB	Kreitler Unit 2H PWP Rev-A.0

API #: 47-017-06480-0000
BHI Job #: 8028027
Rig: Patterson 347
Duration: 07.02.2016-07.05.2016

Azimuth 338.00° with reference 0.00 N, 0.00 E



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Actual Wellpath Report

Kreitler Unit 2H AWP Proj: 13493'

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

REPORT SETUP INFORMATION			
Projection System	NAD27 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Hareluk
Scale	0.999605	Report Generated	7/29/2016 at 10:40:16 AM
Convergence at slot	0.16° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Kreitler_Unit_2H_AWP_Proj__13493_.xml

WELLPATH LOCATION	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-34.92	20.79	1708476.18	14292502.63	39°21'30.070"N	80°45'33.190"W
Facility Reference Pt			1708455.40	14292537.54	39°21'30.416"N	80°45'33.453"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.301"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Patterson 347 (RKB) to Facility Vertical Datum	25.00ft
Horizontal Reference Pt	Slot	Patterson 347 (RKB) to Mean Sea Level	1160.00ft
Vertical Reference Pt	Patterson 347 (RKB)	Patterson 347 (RKB) to Mud Line at Slot (Slot #08)	25.00ft
MD Reference Pt	Patterson 347 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	338.00°

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Actual Wellpath Report

Kreitler Unit 2H AWP Proj: 13493'

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

WELLPATH DATA (164 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	127.770	0.00	0.00	0.00	0.00	1708476.18	14292502.63	39°21'30.070"N	80°45'33.190"W	0.00	0.000	0.00	0.00	0.00	
25.00	0.000	127.770	25.00	0.00	0.00	0.00	1708476.18	14292502.63	39°21'30.070"N	80°45'33.190"W	0.00	0.000	0.00	0.00	0.00	
100.00	0.540	127.770	100.00	-0.31	-0.22	0.28	1708476.46	14292502.41	39°21'30.068"N	80°45'33.186"W	0.35	127.770	0.72	0.72	170.36	Gyrodata MS Gyro <8-3/4">(100'-5697')
200.00	0.180	174.050	200.00	-0.86	-0.66	0.67	1708476.85	14292501.97	39°21'30.063"N	80°45'33.181"W	0.94	134.706	0.44	-0.36	46.28	
300.00	0.180	193.640	300.00	-1.14	-0.97	0.65	1708476.83	14292501.66	39°21'30.060"N	80°45'33.182"W	1.17	146.286	0.06	0.00	19.59	
400.00	0.170	203.100	400.00	-1.37	-1.26	0.55	1708476.73	14292501.37	39°21'30.058"N	80°45'33.183"W	1.38	156.325	0.03	-0.01	9.46	
500.00	0.170	202.920	500.00	-1.58	-1.53	0.44	1708476.62	14292501.10	39°21'30.055"N	80°45'33.184"W	1.59	164.112	0.00	0.00	-0.18	
600.00	0.980	354.420	599.99	-0.87	-0.82	0.30	1708476.48	14292501.81	39°21'30.062"N	80°45'33.186"W	0.87	160.152	1.13	0.81	151.50	
700.00	1.390	354.080	699.97	1.12	1.24	0.09	1708476.27	14292503.87	39°21'30.082"N	80°45'33.189"W	1.24	4.014	0.41	0.41	-0.34	
800.00	1.350	19.900	799.94	3.16	3.55	0.36	1708476.54	14292506.18	39°21'30.105"N	80°45'33.185"W	3.57	5.830	0.61	-0.04	25.82	
900.00	2.510	71.620	899.89	3.90	5.35	2.84	1708479.02	14292507.98	39°21'30.123"N	80°45'33.154"W	6.06	27.970	1.98	1.16	51.72	
1000.00	3.340	77.750	999.76	3.27	6.66	7.77	1708483.94	14292509.29	39°21'30.136"N	80°45'33.091"W	10.23	49.385	0.89	0.83	6.13	
1100.00	3.810	87.490	1099.57	1.66	7.42	13.93	1708490.11	14292510.05	39°21'30.143"N	80°45'33.012"W	15.79	61.949	0.77	0.47	9.74	
1200.00	3.990	101.230	1199.34	-1.35	6.89	20.66	1708496.84	14292509.52	39°21'30.138"N	80°45'32.927"W	21.78	71.556	0.95	0.18	13.74	
1300.00	3.630	105.250	1299.11	-5.17	5.38	27.13	1708503.30	14292508.01	39°21'30.123"N	80°45'32.844"W	27.66	78.780	0.45	-0.36	4.02	
1400.00	3.870	103.600	1398.90	-9.05	3.76	33.47	1708509.63	14292506.38	39°21'30.106"N	80°45'32.764"W	33.68	83.597	0.26	0.24	-1.65	
1500.00	3.920	103.490	1498.67	-13.00	2.16	40.07	1708516.23	14292504.79	39°21'30.090"N	80°45'32.680"W	40.13	86.908	0.05	0.05	-0.11	
1600.00	3.710	98.100	1598.45	-16.61	0.91	46.60	1708522.76	14292503.54	39°21'30.078"N	80°45'32.597"W	46.61	88.879	0.42	-0.21	-5.39	
1700.00	4.010	95.680	1698.22	-19.86	0.11	53.28	1708529.44	14292502.74	39°21'30.070"N	80°45'32.512"W	53.28	89.882	0.34	0.30	-2.42	
1800.00	4.100	103.020	1797.97	-23.53	-1.04	60.24	1708536.40	14292501.59	39°21'30.058"N	80°45'32.423"W	60.25	90.991	0.53	0.09	7.34	
1900.00	3.740	103.460	1897.74	-27.48	-2.61	66.90	1708543.05	14292500.02	39°21'30.043"N	80°45'32.338"W	66.95	92.231	0.36	-0.36	0.44	
2000.00	3.250	100.020	1997.55	-30.87	-3.86	72.86	1708549.01	14292498.77	39°21'30.030"N	80°45'32.263"W	72.96	93.032	0.53	-0.49	-3.44	
2100.00	3.180	124.670	2097.40	-34.69	-5.93	77.93	1708554.08	14292496.70	39°21'30.009"N	80°45'32.198"W	78.16	94.351	1.37	-0.07	24.65	
2200.00	3.330	132.680	2197.24	-39.63	-9.48	82.35	1708558.50	14292493.16	39°21'29.974"N	80°45'32.142"W	82.89	96.565	0.48	0.15	8.01	
2300.00	2.930	119.360	2297.09	-44.26	-12.70	86.71	1708562.86	14292489.94	39°21'29.942"N	80°45'32.086"W	87.64	98.332	0.83	-0.40	-13.32	
2400.00	0.220	349.040	2397.05	-46.06	-13.76	88.90	1708565.05	14292488.87	39°21'29.932"N	80°45'32.059"W	89.96	98.800	3.08	-2.71	-130.32	
2500.00	0.700	293.670	2497.05	-45.44	-13.33	88.31	1708564.45	14292489.31	39°21'29.936"N	80°45'32.066"W	89.31	98.584	0.60	0.48	-55.37	
2600.00	0.990	287.310	2597.03	-44.46	-12.83	86.92	1708563.07	14292489.81	39°21'29.941"N	80°45'32.084"W	87.86	98.395	0.30	0.29	-6.36	
2700.00	0.710	227.580	2697.02	-44.12	-12.99	85.64	1708561.79	14292489.65	39°21'29.939"N	80°45'32.100"W	86.62	98.624	0.88	-0.28	-59.73	
2800.00	0.660	230.740	2797.02	-44.51	-13.77	84.74	1708560.88	14292488.86	39°21'29.932"N	80°45'32.112"W	85.85	99.231	0.06	-0.05	3.16	

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Actual Wellpath Report

Kreitler Unit 2H AWP Proj: 13493'

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REFERENCE WELLPATH IDENTIFICATION

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

WELLPATH DATA (164 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
2900.00	0.500	53.290	2897.02	-44.57	-13.87	84.64	1708560.79	14292488.76	39°21'29.931"N	80°45'32.113"W	85.77	99.309	1.16	-0.16	-177.45	
3000.00	0.560	25.030	2997.01	-44.13	-13.17	85.20	1708561.34	14292489.46	39°21'29.938"N	80°45'32.106"W	86.21	98.788	0.27	0.06	-28.26	
3100.00	0.160	129.060	3097.01	-43.92	-12.82	85.51	1708561.66	14292489.82	39°21'29.941"N	80°45'32.102"W	86.47	98.524	0.62	-0.40	104.03	
3200.00	0.640	190.260	3197.01	-44.51	-13.45	85.52	1708561.67	14292489.18	39°21'29.935"N	80°45'32.102"W	86.57	98.940	0.58	0.48	61.20	
3300.00	0.590	192.870	3297.00	-45.41	-14.51	85.31	1708561.45	14292488.13	39°21'29.924"N	80°45'32.104"W	86.53	99.650	0.06	-0.05	2.61	
3400.00	0.900	117.420	3397.00	-46.42	-15.37	85.89	1708562.04	14292487.27	39°21'29.916"N	80°45'32.097"W	87.25	100.145	0.94	0.31	-75.45	
3500.00	1.130	102.580	3496.98	-47.58	-15.95	87.55	1708563.69	14292486.69	39°21'29.910"N	80°45'32.076"W	88.99	100.322	0.35	0.23	-14.84	
3600.00	0.710	92.430	3596.97	-48.40	-16.19	89.13	1708565.28	14292486.45	39°21'29.908"N	80°45'32.056"W	90.59	100.293	0.45	-0.42	-10.15	
3700.00	0.620	89.260	3696.96	-48.85	-16.21	90.29	1708566.44	14292486.43	39°21'29.907"N	80°45'32.041"W	91.73	100.175	0.10	-0.09	-3.17	
3800.00	1.780	149.980	3796.94	-50.58	-17.54	91.61	1708567.75	14292485.09	39°21'29.894"N	80°45'32.024"W	93.27	100.841	1.57	1.16	60.72	
3900.00	1.770	147.750	3896.89	-53.64	-20.19	93.21	1708569.35	14292482.44	39°21'29.868"N	80°45'32.004"W	95.37	102.224	0.07	-0.01	-2.23	
4000.00	1.700	136.910	3996.85	-56.54	-22.58	95.05	1708571.19	14292480.06	39°21'29.844"N	80°45'31.981"W	97.69	103.366	0.34	-0.07	-10.84	
4100.00	3.410	164.300	4096.75	-60.88	-26.53	96.87	1708573.01	14292476.11	39°21'29.805"N	80°45'31.958"W	100.43	105.317	2.06	1.71	27.39	
4200.00	3.760	150.710	4196.55	-67.09	-32.25	99.27	1708575.42	14292470.39	39°21'29.749"N	80°45'31.927"W	104.38	107.998	0.92	0.35	-13.59	
4300.00	7.220	158.960	4296.08	-76.63	-40.98	103.14	1708579.28	14292461.67	39°21'29.662"N	80°45'31.878"W	110.98	111.670	3.54	3.46	8.25	
4400.00	11.480	159.320	4394.73	-92.87	-56.16	108.91	1708585.05	14292446.49	39°21'29.512"N	80°45'31.805"W	122.54	117.279	4.26	4.26	0.36	
4500.00	11.570	158.140	4492.71	-112.85	-74.78	116.16	1708592.29	14292427.88	39°21'29.328"N	80°45'31.714"W	138.15	122.773	0.25	0.09	-1.18	
4600.00	11.450	155.850	4590.70	-132.80	-93.14	123.95	1708600.08	14292409.52	39°21'29.146"N	80°45'31.615"W	155.05	126.923	0.47	-0.12	-2.29	
4700.00	12.060	152.040	4688.61	-153.10	-111.43	132.91	1708609.04	14292391.25	39°21'28.965"N	80°45'31.502"W	173.44	129.975	0.99	0.61	-3.81	
4800.00	13.040	144.660	4786.22	-174.47	-129.86	144.34	1708620.46	14292372.82	39°21'28.783"N	80°45'31.357"W	194.16	131.978	1.88	0.98	-7.38	
4900.00	13.100	138.390	4883.64	-196.13	-147.54	158.39	1708634.50	14292355.15	39°21'28.608"N	80°45'31.179"W	216.46	132.969	1.42	0.06	-6.27	
5000.00	13.330	134.390	4980.99	-217.37	-164.08	174.15	1708650.26	14292338.62	39°21'28.444"N	80°45'30.978"W	239.27	133.294	0.94	0.23	-4.00	
5100.00	12.210	137.040	5078.52	-237.81	-179.88	189.60	1708665.70	14292322.82	39°21'28.287"N	80°45'30.782"W	261.35	133.493	1.26	-1.12	2.65	
5200.00	13.090	134.900	5176.09	-258.10	-195.61	204.82	1708680.92	14292307.10	39°21'28.131"N	80°45'30.589"W	283.23	133.682	1.00	0.88	-2.14	
5300.00	12.540	144.130	5273.61	-279.05	-212.40	219.21	1708695.30	14292290.31	39°21'27.965"N	80°45'30.406"W	305.23	134.097	2.12	-0.55	9.23	
5400.00	13.570	142.160	5371.02	-300.88	-230.47	232.77	1708708.85	14292272.25	39°21'27.786"N	80°45'30.234"W	327.56	134.715	1.12	1.03	-1.97	
5500.00	14.450	141.560	5468.05	-324.13	-249.50	247.72	1708723.80	14292253.22	39°21'27.598"N	80°45'30.045"W	351.59	135.206	0.89	0.88	-0.60	
5600.00	12.960	144.410	5565.20	-347.00	-268.40	262.00	1708738.08	14292234.34	39°21'27.410"N	80°45'29.864"W	375.08	135.691	1.64	-1.49	2.85	
5697.00	13.300	147.040	5659.66	-368.53	-286.60	274.41	1708750.48	14292216.14	39°21'27.230"N	80°45'29.706"W	396.79	136.246	0.71	0.35	2.71	
5814.00	15.710	147.850	5772.92	-397.34	-311.31	290.16	1708766.22	14292191.44	39°21'26.986"N	80°45'29.507"W	425.57	137.014	2.07	2.06	0.69	BHI AT Curve <8-1/2">(5697')(5814'-13470')

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Actual Wellpath Report

Kreitler Unit 2H AWP Proj: 13493'

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

WELLPATH DATA (164 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
5864.00	14.250	148.010	5821.22	-410.06	-322.26	297.02	1708773.08	14292180.50	39°21'26.877"N	80°45'29.420"W	438.26	137.334	2.92	-2.92	0.32	
5958.00	13.860	147.560	5912.41	-432.53	-341.58	309.19	1708785.25	14292161.19	39°21'26.686"N	80°45'29.265"W	460.73	137.849	0.43	-0.41	-0.48	
6004.00	13.650	140.920	5957.09	-443.14	-350.44	315.57	1708791.62	14292152.33	39°21'26.598"N	80°45'29.184"W	471.58	137.997	3.46	-0.46	-14.43	
6052.00	12.540	118.080	6003.88	-452.55	-357.29	323.74	1708799.79	14292145.48	39°21'26.530"N	80°45'29.081"W	482.15	137.821	10.95	-2.31	-47.58	
6098.00	11.630	91.490	6048.89	-458.24	-359.77	332.79	1708808.84	14292143.01	39°21'26.505"N	80°45'28.966"W	490.08	137.231	12.15	-1.98	-57.80	
6146.00	10.420	68.970	6096.03	-460.24	-358.34	341.68	1708817.73	14292144.44	39°21'26.519"N	80°45'28.852"W	495.13	136.363	9.25	-2.52	-46.92	
6192.00	8.220	57.180	6141.42	-459.69	-355.06	348.33	1708824.37	14292147.71	39°21'26.552"N	80°45'28.768"W	497.39	135.548	6.31	-4.78	-25.63	
6240.00	8.540	37.800	6188.92	-457.25	-350.38	353.40	1708829.44	14292152.39	39°21'26.598"N	80°45'28.703"W	497.65	134.754	5.89	0.67	-40.37	
6284.00	10.620	17.520	6232.31	-452.48	-343.93	356.62	1708832.66	14292158.83	39°21'26.661"N	80°45'28.662"W	495.45	133.962	8.94	4.73	-46.09	
6333.00	13.550	4.780	6280.23	-443.87	-333.90	358.46	1708834.50	14292168.86	39°21'26.760"N	80°45'28.638"W	489.88	132.968	8.05	5.98	-26.00	
6379.00	17.670	6.440	6324.52	-432.92	-321.59	359.69	1708835.73	14292181.17	39°21'26.882"N	80°45'28.622"W	482.49	131.799	9.01	8.96	3.61	
6427.00	21.840	4.560	6369.69	-418.52	-305.44	361.22	1708837.26	14292197.31	39°21'27.042"N	80°45'28.602"W	473.05	130.217	8.79	8.69	-3.92	
6482.00	25.830	0.110	6419.99	-398.26	-283.25	362.06	1708838.09	14292219.49	39°21'27.261"N	80°45'28.590"W	459.69	128.037	7.95	7.25	-8.09	
6521.00	28.510	357.820	6454.69	-381.63	-265.45	361.72	1708837.76	14292237.28	39°21'27.437"N	80°45'28.594"W	448.67	126.273	7.38	6.87	-5.87	
6540.00†	29.006	353.967	6471.35	-372.93	-256.34	361.06	1708837.10	14292246.39	39°21'27.527"N	80°45'28.602"W	442.81	125.373	10.10	2.61	-20.28	Sycamore: 6540' MD
6565.00	29.820	349.100	6493.13	-361.00	-244.21	359.25	1708835.29	14292258.52	39°21'27.647"N	80°45'28.625"W	434.39	124.206	10.10	3.26	-19.47	
6616.00	32.100	340.770	6536.88	-335.01	-218.94	352.39	1708828.43	14292283.77	39°21'27.897"N	80°45'28.711"W	414.86	121.853	9.51	4.47	-16.33	
6658.00	35.310	342.180	6571.81	-311.75	-196.85	344.99	1708821.04	14292305.86	39°21'28.115"N	80°45'28.805"W	397.20	119.708	7.87	7.64	3.36	
6710.00	38.820	343.900	6613.30	-280.54	-166.87	335.87	1708811.92	14292335.83	39°21'28.412"N	80°45'28.920"W	375.04	116.419	7.04	6.75	3.31	
6752.00	42.440	342.840	6645.17	-253.31	-140.67	328.04	1708804.09	14292362.01	39°21'28.671"N	80°45'29.019"W	356.93	113.211	8.77	8.62	-2.52	
6753.00†	42.518	342.803	6645.91	-252.64	-140.03	327.84	1708803.89	14292362.66	39°21'28.677"N	80°45'29.021"W	356.49	113.128	8.22	7.84	-3.66	Middlesex: 6753' MD
6804.00	46.530	341.070	6682.26	-216.97	-106.04	316.73	1708792.79	14292396.63	39°21'29.014"N	80°45'29.161"W	334.01	108.510	8.22	7.87	-3.40	
6854.00	49.860	338.340	6715.59	-179.73	-71.10	303.79	1708779.85	14292431.55	39°21'29.359"N	80°45'29.325"W	312.00	103.173	7.80	6.66	-5.46	
6898.00	52.800	334.860	6743.09	-145.40	-39.60	290.13	1708766.20	14292463.05	39°21'29.671"N	80°45'29.498"W	292.82	97.772	9.10	6.68	-7.91	
6945.00	56.600	333.170	6770.24	-107.14	-5.13	273.32	1708749.39	14292497.50	39°21'30.012"N	80°45'29.711"W	273.37	91.075	8.60	8.09	-3.60	
6964.00†	57.731	332.718	6780.54	-91.24	9.09	266.06	1708742.13	14292511.71	39°21'30.153"N	80°45'29.803"W	266.21	88.044	6.28	5.95	-2.38	Burkett: 6964' MD
6993.00	59.460	332.050	6795.66	-66.61	31.02	254.58	1708730.66	14292533.63	39°21'30.370"N	80°45'29.948"W	256.46	83.054	6.28	5.96	-2.30	
7023.00†	61.062	331.734	6810.54	-40.71	53.99	242.31	1708718.39	14292556.60	39°21'30.597"N	80°45'30.103"W	248.25	77.438	5.42	5.34	-1.05	Tully: 7023' MD
7040.00	61.970	331.560	6818.64	-25.86	67.14	235.21	1708711.30	14292569.75	39°21'30.727"N	80°45'30.193"W	244.61	74.068	5.42	5.34	-1.03	
7087.00	64.870	331.890	6839.67	15.92	104.16	215.31	1708691.40	14292606.74	39°21'31.094"N	80°45'30.445"W	239.18	64.184	6.20	6.17	0.70	

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7114.00†	67.466	332.647	6850.58	40.49	126.02	203.82	1708679.91	14292628.60	39°21'31.310"N	80°45'30.591"W	239.63	58.272	9.95	9.61	2.80	Hamilton: 7114' MD
7137.00	69.680	333.270	6858.98	61.82	145.08	194.08	1708670.19	14292647.66	39°21'31.499"N	80°45'30.714"W	242.32	53.220	9.95	9.63	2.71	
7141.00†	69.920	333.518	6860.36	65.56	148.44	192.40	1708668.51	14292651.01	39°21'31.532"N	80°45'30.735"W	243.01	52.349	8.36	6.00	6.20	Marcellus: 7141' MD
7181.00	72.340	335.960	6873.30	103.34	182.67	176.26	1708652.37	14292685.23	39°21'31.871"N	80°45'30.940"W	253.84	43.977	8.36	6.05	6.10	
7228.00	77.260	339.390	6885.62	148.67	224.61	159.05	1708635.17	14292727.15	39°21'32.286"N	80°45'31.157"W	275.22	35.303	12.62	10.47	7.30	
7275.00	82.530	340.520	6893.87	194.90	268.06	143.20	1708619.32	14292770.59	39°21'32.716"N	80°45'31.358"W	303.92	28.111	11.46	11.21	2.40	
7322.00	88.400	341.370	6897.58	241.67	312.33	127.91	1708604.04	14292814.84	39°21'33.154"N	80°45'31.551"W	337.51	22.271	12.62	12.49	1.81	
7369.00	90.090	343.040	6898.20	288.54	357.07	113.55	1708589.69	14292859.56	39°21'33.596"N	80°45'31.732"W	374.69	17.641	5.05	3.60	3.55	
7463.00	90.180	340.650	6897.98	382.32	446.39	84.26	1708560.41	14292948.84	39°21'34.480"N	80°45'32.102"W	454.27	10.690	2.54	0.10	-2.54	
7557.00	90.150	336.620	6897.71	476.29	533.91	50.03	1708526.19	14293036.33	39°21'35.346"N	80°45'32.535"W	536.25	5.353	4.29	-0.03	-4.29	
7651.00	90.280	346.350	6897.36	570.01	622.94	20.21	1708496.38	14293125.32	39°21'36.226"N	80°45'32.912"W	623.26	1.858	10.35	0.14	10.35	
7745.00	90.490	344.850	6896.72	663.17	713.98	-3.16	1708473.02	14293216.33	39°21'37.127"N	80°45'33.206"W	713.99	359.746	1.61	0.22	-1.60	
7839.00	90.830	334.810	6895.64	757.00	802.10	-35.53	1708440.66	14293304.41	39°21'37.999"N	80°45'33.615"W	802.88	357.464	10.69	0.36	-10.68	
7933.00	90.060	335.700	6894.91	850.89	887.46	-74.88	1708401.33	14293389.74	39°21'38.843"N	80°45'34.113"W	890.61	355.177	1.25	-0.82	0.95	
8027.00	90.000	336.180	6894.86	944.83	973.29	-113.20	1708363.03	14293475.54	39°21'39.693"N	80°45'34.598"W	979.85	353.366	0.51	-0.06	0.51	
8121.00	90.030	336.130	6894.83	1038.78	1059.27	-151.20	1708325.04	14293561.48	39°21'40.543"N	80°45'35.079"W	1070.01	351.877	0.06	0.03	-0.05	
8215.00	89.940	338.410	6894.86	1132.76	1145.96	-187.52	1708288.74	14293648.14	39°21'41.401"N	80°45'35.538"W	1161.20	350.707	2.43	-0.10	2.43	
8309.00	90.090	343.430	6894.83	1226.61	1234.77	-218.24	1708258.03	14293736.91	39°21'42.280"N	80°45'35.927"W	1253.91	349.977	5.34	0.16	5.34	
8403.00	90.890	340.720	6894.03	1320.36	1324.20	-247.16	1708229.12	14293826.30	39°21'43.164"N	80°45'36.292"W	1347.06	349.427	3.01	0.85	-2.88	
8498.00	91.050	335.200	6892.42	1415.31	1412.21	-282.79	1708193.50	14293914.28	39°21'44.035"N	80°45'36.742"W	1440.24	348.676	5.81	0.17	-5.81	
8592.00	90.490	333.820	6891.16	1509.13	1497.05	-323.24	1708153.07	14293999.08	39°21'44.875"N	80°45'37.255"W	1531.55	347.816	1.58	-0.60	-1.47	
8686.00	89.690	330.430	6891.01	1602.62	1580.13	-367.18	1708109.14	14294082.13	39°21'45.697"N	80°45'37.811"W	1622.23	346.918	3.71	-0.85	-3.61	
8780.00	90.310	331.750	6891.01	1695.93	1662.41	-412.62	1708063.72	14294164.38	39°21'46.511"N	80°45'38.387"W	1712.85	346.060	1.55	0.66	1.40	
8874.00	89.970	331.380	6890.78	1789.34	1745.07	-457.38	1708018.98	14294247.01	39°21'47.330"N	80°45'38.954"W	1804.01	345.313	0.53	-0.36	-0.39	
8968.00	89.630	332.450	6891.11	1882.81	1828.00	-501.64	1707974.74	14294329.90	39°21'48.150"N	80°45'39.515"W	1895.58	344.655	1.19	-0.36	1.14	
9062.00	90.180	335.120	6891.26	1976.54	1912.32	-543.16	1707933.24	14294414.19	39°21'48.985"N	80°45'40.040"W	1987.96	344.144	2.90	0.59	2.84	
9156.00	90.060	337.160	6891.07	2070.49	1998.28	-581.18	1707895.23	14294500.12	39°21'49.835"N	80°45'40.522"W	2081.08	343.784	2.17	-0.13	2.17	
9250.00	90.280	346.170	6890.79	2164.20	2087.42	-610.72	1707865.71	14294589.22	39°21'50.717"N	80°45'40.895"W	2174.92	343.692	9.59	0.23	9.59	
9345.00	92.400	348.210	6888.57	2257.95	2180.02	-631.77	1707844.66	14294681.79	39°21'51.633"N	80°45'41.160"W	2269.72	343.838	3.10	2.23	2.15	
9439.00	90.860	339.630	6885.89	2351.32	2270.22	-657.77	1707818.67	14294771.95	39°21'52.525"N	80°45'41.488"W	2363.59	343.842	9.27	-1.64	-9.13	

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Kreitler Unit 2H AWP Proj: 13493'

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

WELLPATH DATA (164 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
9533.00	88.610	337.650	6886.32	2445.30	2357.75	-692.01	1707784.45	14294859.44	39°21'53.391"N	80°45'41.921"W	2457.21	343.643	3.19	-2.39	-2.11	
9627.00	90.060	337.010	6887.41	2539.28	2444.48	-728.23	1707748.24	14294946.14	39°21'54.249"N	80°45'42.379"W	2550.65	343.411	1.69	1.54	-0.68	
9721.00	90.030	335.700	6887.34	2633.24	2530.59	-765.93	1707710.55	14295032.21	39°21'55.101"N	80°45'42.856"W	2643.96	343.160	1.39	-0.03	-1.39	
9815.00	90.030	335.730	6887.29	2727.17	2616.27	-804.59	1707671.91	14295117.86	39°21'55.949"N	80°45'43.345"W	2737.19	342.906	0.03	0.00	0.03	
9909.00	90.060	336.460	6887.22	2821.11	2702.20	-842.68	1707633.83	14295203.76	39°21'56.799"N	80°45'43.828"W	2830.55	342.680	0.78	0.03	0.78	
10003.00	90.090	337.290	6887.09	2915.10	2788.65	-879.60	1707596.93	14295290.17	39°21'57.655"N	80°45'44.295"W	2924.08	342.494	0.88	0.03	0.88	
10097.00	90.000	341.520	6887.02	3009.05	2876.62	-912.66	1707563.88	14295378.11	39°21'58.525"N	80°45'44.713"W	3017.93	342.397	4.50	-0.10	4.50	
10191.00	90.060	340.810	6886.97	3102.90	2965.59	-943.01	1707533.55	14295467.04	39°21'59.405"N	80°45'45.096"W	3111.91	342.360	0.76	0.06	-0.76	
10285.00	90.090	340.020	6886.85	3196.82	3054.15	-974.51	1707502.05	14295555.57	39°22'00.281"N	80°45'45.494"W	3205.85	342.303	0.84	0.03	-0.84	
10380.00	90.250	347.040	6886.56	3291.32	3145.19	-1001.43	1707475.15	14295646.58	39°22'01.182"N	80°45'45.834"W	3300.77	342.338	7.39	0.17	7.39	
10474.00	90.830	349.900	6885.68	3383.74	3237.28	-1020.22	1707456.37	14295738.63	39°22'02.093"N	80°45'46.070"W	3394.24	342.508	3.10	0.62	3.04	
10569.00	91.320	340.370	6883.89	3477.88	3328.98	-1044.56	1707432.04	14295830.29	39°22'03.000"N	80°45'46.377"W	3489.01	342.579	10.04	0.52	-10.03	
10662.00	90.550	332.700	6882.37	3570.76	3414.21	-1081.56	1707395.05	14295915.49	39°22'03.843"N	80°45'46.845"W	3581.43	342.423	8.29	-0.83	-8.25	
10756.00	89.940	333.090	6881.97	3664.39	3497.89	-1124.38	1707352.24	14295999.13	39°22'04.671"N	80°45'47.388"W	3674.16	342.180	0.77	-0.65	0.41	
10850.00	90.000	331.600	6882.02	3757.93	3581.15	-1168.01	1707308.63	14296082.36	39°22'05.495"N	80°45'47.940"W	3766.81	341.936	1.59	0.06	-1.59	
10944.00	90.030	334.570	6881.99	3851.57	3664.96	-1210.56	1707266.10	14296166.13	39°22'06.324"N	80°45'48.479"W	3859.71	341.721	3.16	0.03	3.16	
11038.00	90.000	338.230	6881.97	3945.52	3751.08	-1248.18	1707228.49	14296252.22	39°22'07.177"N	80°45'48.956"W	3953.30	341.595	3.89	-0.03	3.89	
11132.00	90.000	336.400	6881.97	4039.51	3837.80	-1284.44	1707192.25	14296338.91	39°22'08.035"N	80°45'49.414"W	4047.04	341.496	1.95	0.00	-1.95	
11226.00	90.000	336.250	6881.97	4133.47	3923.89	-1322.18	1707154.52	14296424.97	39°22'08.887"N	80°45'49.892"W	4140.66	341.378	0.16	0.00	-0.16	
11320.00	90.060	336.000	6881.92	4227.42	4009.85	-1360.23	1707116.49	14296510.89	39°22'09.737"N	80°45'50.374"W	4234.28	341.262	0.27	0.06	-0.27	
11414.00	89.850	335.540	6881.99	4321.35	4095.57	-1398.80	1707077.93	14296596.57	39°22'10.585"N	80°45'50.862"W	4327.86	341.143	0.54	-0.22	-0.49	
11508.00	90.120	337.510	6882.02	4415.31	4181.78	-1436.25	1707040.50	14296682.76	39°22'11.438"N	80°45'51.336"W	4421.55	341.045	2.12	0.29	2.10	
11603.00	89.940	339.610	6881.97	4510.30	4270.21	-1470.97	1707005.79	14296771.14	39°22'12.313"N	80°45'51.775"W	4516.46	340.993	2.22	-0.19	2.21	
11697.00	90.310	340.710	6881.76	4604.23	4358.62	-1502.87	1706973.90	14296859.53	39°22'13.188"N	80°45'52.178"W	4610.45	340.976	1.23	0.39	1.17	
11791.00	91.420	339.250	6880.35	4698.16	4446.93	-1535.05	1706941.74	14296947.80	39°22'14.062"N	80°45'52.585"W	4704.42	340.956	1.95	1.18	-1.55	
11885.00	91.540	335.200	6877.92	4792.10	4533.55	-1571.42	1706905.39	14297034.39	39°22'14.919"N	80°45'53.045"W	4798.17	340.883	4.31	0.13	-4.31	
11979.00	90.430	332.760	6876.30	4885.85	4618.01	-1612.64	1706864.18	14297118.80	39°22'15.754"N	80°45'53.567"W	4891.48	340.750	2.85	-1.18	-2.60	
12073.00	90.550	336.880	6875.50	4979.68	4703.05	-1652.63	1706824.21	14297203.82	39°22'16.596"N	80°45'54.074"W	4984.97	340.639	4.38	0.13	4.38	
12167.00	90.650	338.470	6874.51	5073.67	4790.00	-1688.33	1706788.52	14297290.73	39°22'17.456"N	80°45'54.525"W	5078.83	340.584	1.69	0.11	1.69	
12261.00	90.430	337.390	6873.63	5167.66	4877.11	-1723.65	1706753.22	14297377.80	39°22'18.318"N	80°45'54.972"W	5172.73	340.536	1.17	-0.23	-1.15	

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Actual Wellpath Report

Kreitler Unit 2H AWP Proj: 13493'

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

WELLPATH DATA (164 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
12355.00	90.340	334.590	6872.99	5261.59	4962.96	-1761.89	1706714.99	14297463.62	39°22'19.168"N	80°45'55.456"W	5266.43	340.455	2.98	-0.10	-2.98	
12449.00	89.720	340.000	6872.94	5355.55	5049.64	-1798.16	1706678.73	14297550.27	39°22'20.025"N	80°45'55.915"W	5360.25	340.399	5.79	-0.66	5.76	
12542.00	90.000	341.450	6873.17	5448.44	5137.43	-1828.86	1706648.05	14297638.02	39°22'20.894"N	80°45'56.303"W	5453.25	340.405	1.59	0.30	1.56	
12637.00	89.780	338.290	6873.35	5543.38	5226.61	-1861.55	1706615.37	14297727.17	39°22'21.776"N	80°45'56.717"W	5548.23	340.396	3.33	-0.23	-3.33	
12731.00	89.850	335.660	6873.66	5637.36	5313.12	-1898.31	1706578.62	14297813.64	39°22'22.632"N	80°45'57.182"W	5642.06	340.339	2.80	0.07	-2.80	
12825.00	89.850	337.750	6873.90	5731.33	5399.45	-1935.48	1706541.46	14297899.94	39°22'23.486"N	80°45'57.652"W	5735.87	340.279	2.22	0.00	2.22	
12919.00	89.690	338.540	6874.28	5825.33	5486.69	-1970.48	1706506.49	14297987.15	39°22'24.349"N	80°45'58.095"W	5829.80	340.245	0.86	-0.17	0.84	
13013.00	89.720	340.050	6874.77	5919.30	5574.62	-2003.71	1706473.27	14298075.04	39°22'25.219"N	80°45'58.515"W	5923.78	340.230	1.61	0.03	1.61	
13107.00	91.020	343.320	6874.16	6013.09	5663.84	-2033.24	1706443.74	14298164.22	39°22'26.102"N	80°45'58.888"W	6017.74	340.253	3.74	1.38	3.48	
13201.00	90.520	337.870	6872.89	6106.95	5752.46	-2064.46	1706412.54	14298252.81	39°22'26.978"N	80°45'59.283"W	6111.69	340.258	5.82	-0.53	-5.80	
13294.00	90.460	334.850	6872.10	6199.89	5837.64	-2101.75	1706375.27	14298337.96	39°22'27.821"N	80°45'59.755"W	6204.47	340.199	3.25	-0.06	-3.25	
13389.00	90.000	334.550	6871.72	6294.74	5923.53	-2142.34	1706334.69	14298423.81	39°22'28.671"N	80°46'00.269"W	6299.03	340.117	0.58	-0.48	-0.32	
13470.00	89.910	335.810	6871.78	6375.64	5997.04	-2176.34	1706300.70	14298497.30	39°22'29.399"N	80°46'00.700"W	6379.74	340.054	1.56	-0.11	1.56	
13493.00	89.910	335.810	6871.82	6398.62	6018.03	-2185.77	1706291.28	14298518.27	39°22'29.606"N	80°46'00.819"W	6402.67	340.039	0.00	0.00	0.00	Projected MD at TD: 13493'

HOLE & CASING SECTIONS - Ref Wellbore: Kreitler Unit 2H AWB Ref Wellpath: Kreitler Unit 2H AWP Proj: 13493'

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	40.00	15.00	25.00	40.00	0.00	0.00	-0.01	0.01
13.375in Casing Surface	25.00	542.00	517.00	25.00	542.00	0.00	0.00	-1.47	0.38
9.625in Casing Intermediate	25.00	2489.90	2464.90	25.00	2486.95	0.00	0.00	-13.38	88.41

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

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Kreitler Unit 2H POE Rev-1	6857.00	113.79	215.70	1708691.80	14292616.38	39°21'31.189"N	80°45'30.440"W	point
Kreitler Unit 2H BHL Rev-1	6897.00	5947.70	-2140.90	1706336.13	14298447.97	39°22'28.910"N	80°46'00.250"W	point
Kreitler Unit 2H LP Rev-1	6897.00	308.80	136.93	1708613.05	14292811.31	39°21'33.119"N	80°45'31.436"W	point

WELLPATH COMPOSITION - Ref Wellbore: Kreitler Unit 2H AWB Ref Wellpath: Kreitler Unit 2H AWP Proj: 13493'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
25.00	5697.00	Gyrodata standard - Drop gyro or Multi-shot	01_Gyrodata MS Gyro <8-3/4">(100'-5697')	Kreitler Unit 2H AWB
5697.00	13470.00	BHI AutoTrak Curve (Short)	02_BHI AT Curve <8-1/2">(5697')(5814'-13470')	Kreitler Unit 2H AWB
13470.00	13493.00	Blind Drilling (std)	Projection to bit	Kreitler Unit 2H AWB

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

WELLPATH COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
100.00	0.540	127.770	100.00	Gyrodata MS Gyro <8-3/4">(100'-5697')
5814.00	15.710	147.850	5772.92	BHI AT Curve <8-1/2">(5697')(5814'-13470')
6540.00	29.006	353.967	6471.35	Sycamore: 6540' MD
6753.00	42.518	342.803	6645.91	Middlesex: 6753' MD
6964.00	57.731	332.718	6780.54	Burkett: 6964' MD
7023.00	61.062	331.734	6810.54	Tully: 7023' MD
7114.00	67.466	332.647	6850.58	Hamilton: 7114' MD
7141.00	69.920	333.518	6860.36	Marcellus: 7141' MD
13493.00	89.910	335.810	6871.82	Projected MD at TD: 13493'

COMMENTS

Wellpath general comments
API #: 47-017-06480-0000
BHI Job #: 8028027
Rig: Patterson 347
Duration: 07.02.2016-07.05.2016
Gyrodata MS Gyro <8-3/4">(100'-5697')
BHI AT Curve <8-1/2">(5697')(5814'-13470')
Sycamore: 6540' MD
Middlesex: 6753' MD
Burkett: 6964' MD
Tully: 7023' MD
Hamilton: 7114' MD
Marcellus: 7141' MD
Projected MD at TD: 13493'

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WV Department of
Environmental Protection

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	9/26/2017
Job End Date:	10/2/2017
State:	West Virginia
County:	Doddridge
API Number:	47-017-06480-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Kreitler 2H
Latitude:	39.35835278
Longitude:	-80.75921944
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	6,898
Total Base Water Volume (gal):	11,573,693
Total Base Non Water Volume:	0

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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
Water	Antero Resources	Carrier/Base Fluid					
			Water	7732-18-5	100.00000	88.01217	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	11.77087	
HCL Acid (12.6%-17.5%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.40000	0.10956	
			Hydrogen Chloride	7647-01-0	17.50000	0.02547	
LGC-15	U.S. Well Services, LLC	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.01933	
			Petroleum Distillates	64742-47-8	60.00000	0.01831	
			Suspending agent (solid)	14808-60-7	3.00000	0.00296	
			Surfactant	68439-51-0	3.00000	0.00116	
WFRA-405	U.S. Well Services, LLC	Friction Reducer					
			2-Propenoic acid, polymer with 2 propenamide	9003-06-9	30.00000	0.01769	
			Hydrated light distillate (petroleum)	64742-47-8	30.00000	0.01424	

Bioclear 2000	U.S. Well Services, LLC	Anti-Bacterial Agent					
			2,2-dibromo-3-nitrilopropionamide	10222-01-2	20.00000	0.00396	
			Deionized Water	7732-18-5	28.00000	0.00226	
SI-1200s	U.S. Well Services, LLC	Scale Inhibitor					
			Proprietary Scale Inhibitor	Proprietary	10.00000	0.00129	
AP One	U.S. Well Services, LLC	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00065	
AI-303	U.S. Well Services, LLC	Acid Corrosion Inhibitors					
			Ethylene glycol	107-21-1	40.00000	0.00004	
			Formic acid	64-18-6	20.00000	0.00002	
			Cinnamaldehyde	104-55-2	20.00000	0.00002	
			Butyl cellosolve	111-76-2	20.00000	0.00001	
			Polyether	60828-78-6	10.00000	0.00001	
			Acetophenone,thiourea,formaldehyde polymer	68527-49-1	5.00000	0.00000	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

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

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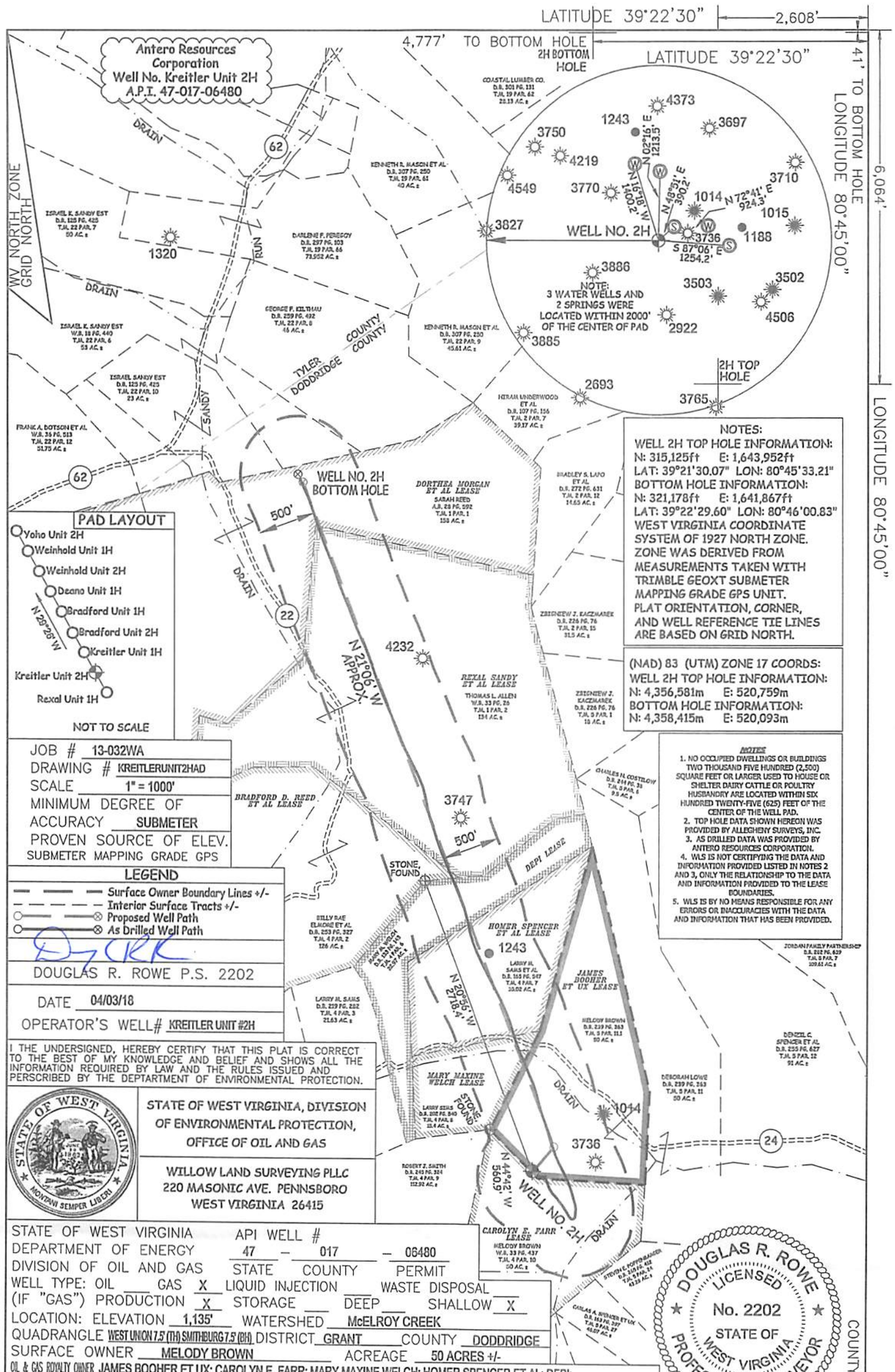


STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
DIVISION OF OIL AND GAS

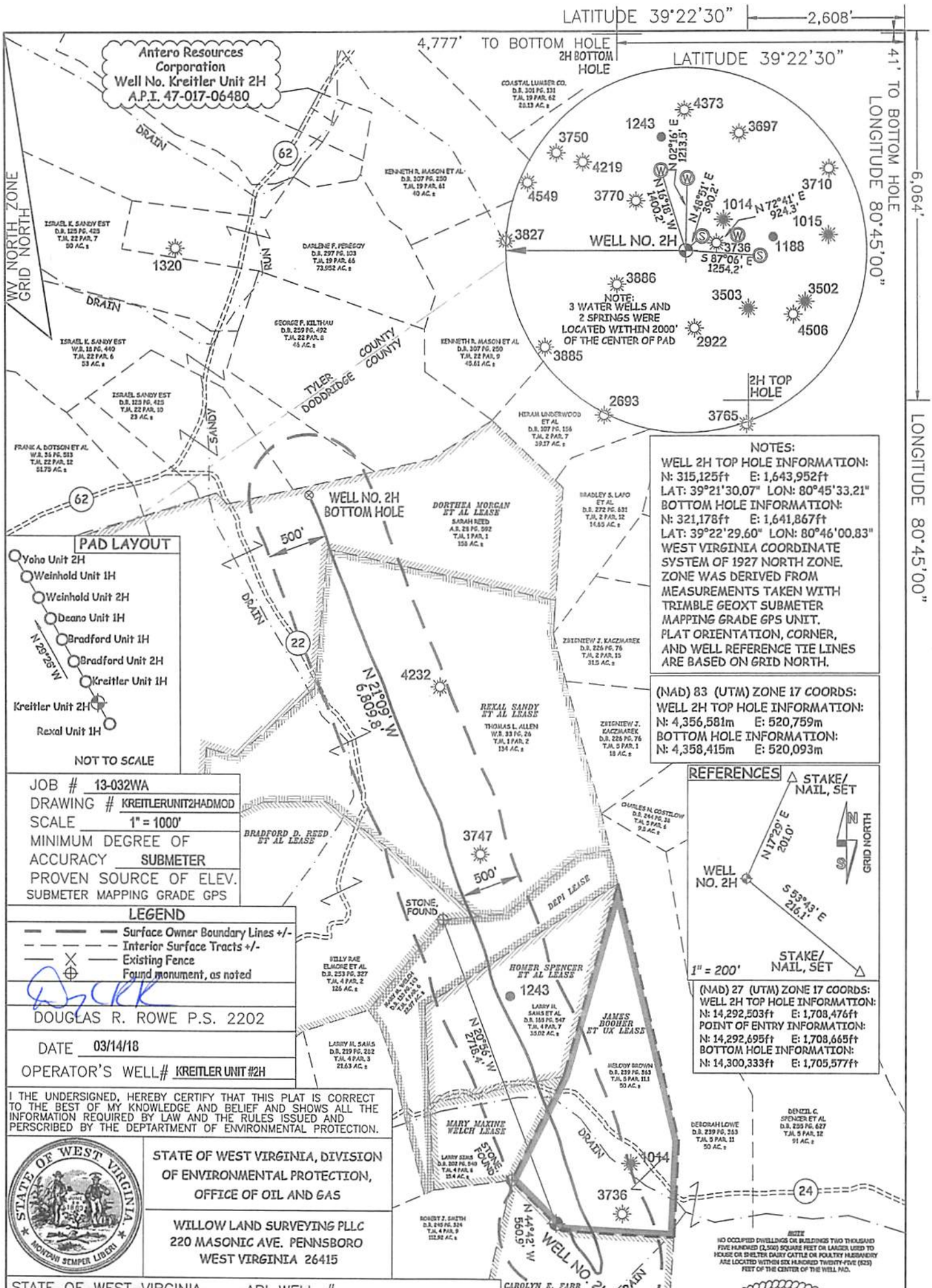
API WELL # 47 – 017 – 06480
STATE COUNTY PERMIT

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

LOCATION: ELEVATION 1,135' WATERSHED McELROY CREEK
QUADRANGLE WEST UNION 7.5' (TH) SMITHBURG 7.5' (BH) DISTRICT GRANT COUNTY DODDRIDGE
SURFACE OWNER MELODY BROWN ACREAGE 50 ACRES +/-
OIL & GAS ROYALTY OWNER JAMES BOOHER ET UX; CAROLYN E. FARR; MARY MAXINE WELCH; HOMER SPENCER ET AL; DEPI; BRADFORD D. REED ET AL; REXAL SANDY ET AL; DORTHEA MORGAN ET AL
LEASE ACREAGE 50 AC±; 50 AC±; 15 AC±; 35 AC±; 22.97 AC±; 126 AC±; 134 AC±; 159 AC±
PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___
PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AS-DRILLED ___ PLUG & ABANDON ___ CLEAN OUT & REPLUG ___
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,872' TVD 13,493' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER
ADDRESS 1615 WYNKOOP ST ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

FORM WW-6

COUNTY NAME PERMIT



JOB # 13-032WA
DRAWING # KREITLERUNIT2HADMOD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Existing Fence
- Found monument, as noted

DOUGLAS R. ROWE P.S. 2202

DATE 03/14/18

OPERATOR'S WELL# KREITLER UNIT #2H

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
220 MASONIC AVE. PENNSBORO
WEST VIRGINIA 26415

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

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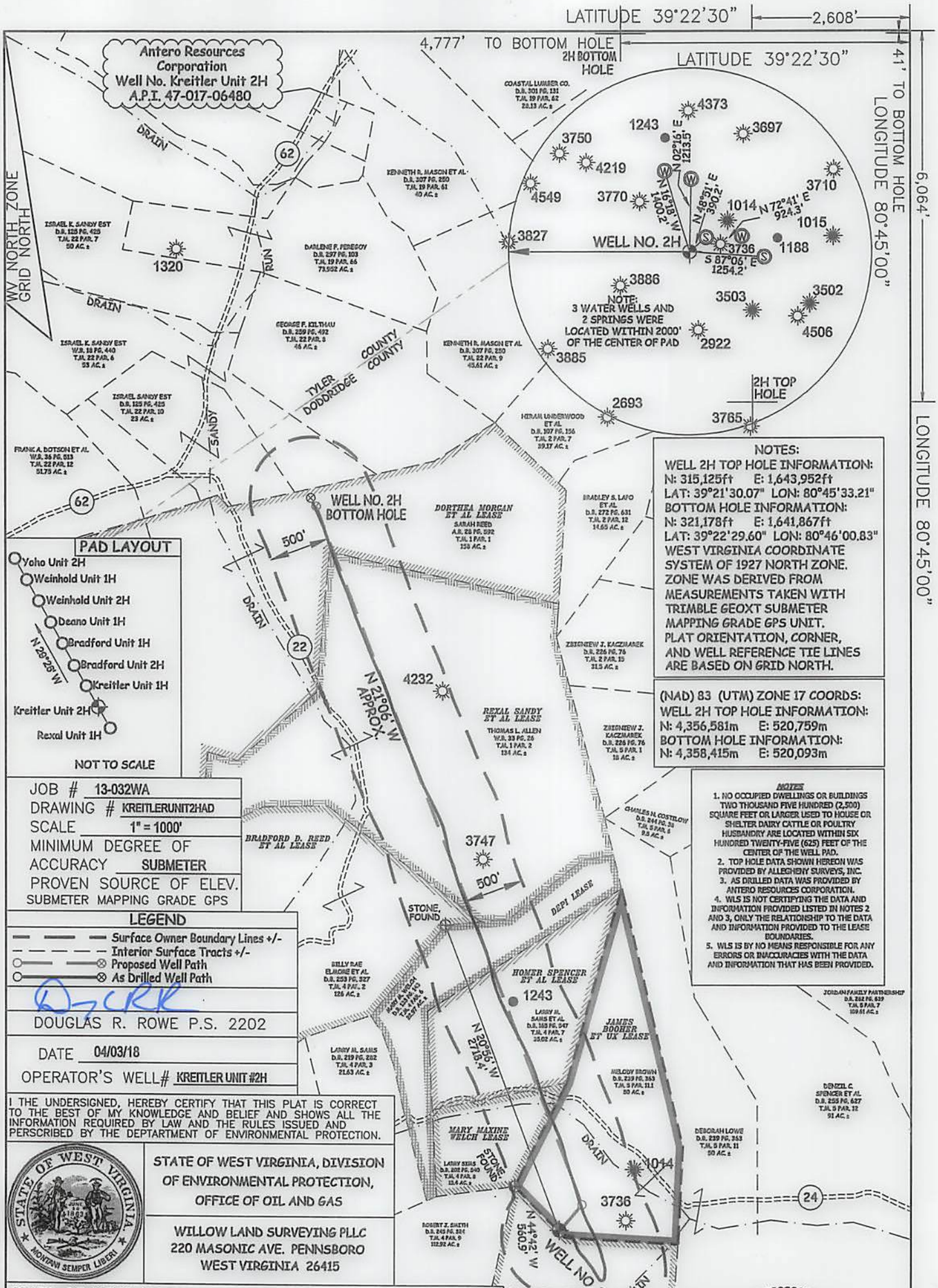

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LEGEND

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

DRR

DOUGLAS R. ROWE P.S. 2202

DATE 04/03/18

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

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

DOUGLAS R. ROWE LICENSED No. 2202 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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

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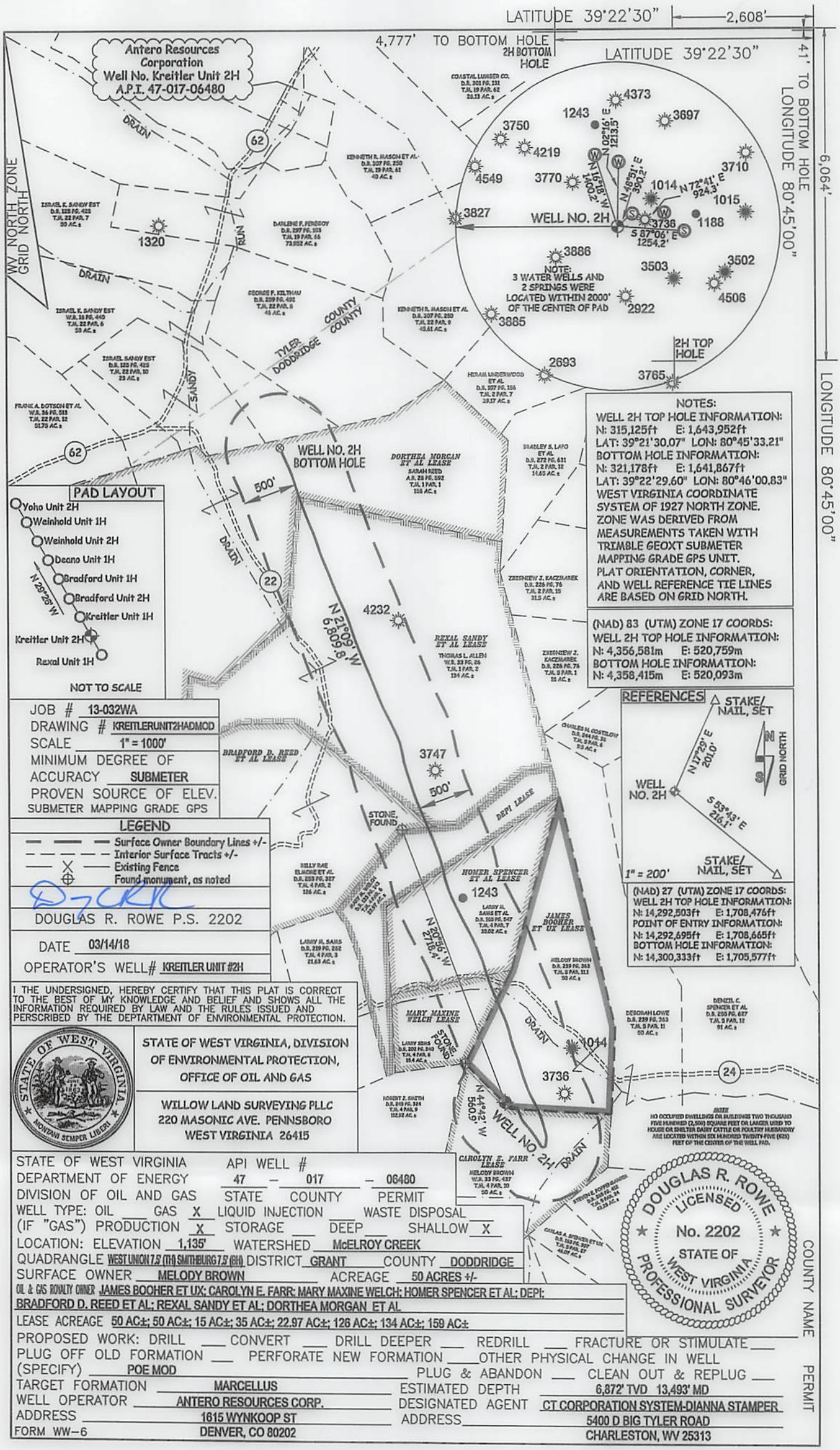

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