

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

API 47 - 085 - 10144 County Ritchie District Clay
Quad Pennsboro 7.5' Pad Name Annie Horizontal Pad Field/Pool Name ----
Farm name Eddy F. Landrum Well Number Ericson 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 4353115m Easting 506432m
Landing Point of Curve Northing 4353047.83m Easting 506577.45m
Bottom Hole Northing 4351225m Easting 507312m

Elevation (ft) 1004' 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 11/13/2014 Date drilling commenced 2/25/2015 Date drilling ceased 7/20/2015
Date completion activities began 7/31/2015 Date completion activities ceased 10/1/2015
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 216' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2210', 5202' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 176', 316', 516', 976', 1056', 1776' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

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APPROVED

NAME: Michael Daff

DATE: 6/13/16

Reviewed by:

09/16/2016
RBDMS 11/15/16

API 47-085 - 10144 Farm name Eddy F. Landrum Well number Ericson Unit 3H

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	30"	20"	40'	New	94#/J-55	N/A	Y
Surface	17-1/2"	13-3/8"	322'	New	48#/H-40	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2567'	New	36#/J-55	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4"/8-1/2"	5-1/2"	13,152'	New	20#/P-110	N/A	Y
Tubing		2-3/8"	6477'		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	193 sx	15.6	1.2	38 Cu. Ft.	0'	8 Hrs.
Surface	Class A	430 sx	15.6	1.18	224 Cu. Ft.	0'	8 Hrs.
Coal							
Intermediate 1	Class A	1007 sx	15.6	1.18	804 Cu. Ft.	0'	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	994 sx (Lead), 1100 sx (Tail)	14.2 (Lead), 14.8 (Tail)	1.24 (Lead), 1.81 (Tail)	2540 Cu. Ft.	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 13,152' MD, 6335' TVD (BHL), 6344' TVD (Deepest Point Drilled) Loggers TD (ft) 13,101' MD
 Deepest formation penetrated Marcellus Shale Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5560'

** This is a subsequent well. Antero only runs wireline logs on one well on a multi-well pad (Belle Unit 3H API# 47-085-10029). Please reference the wireline logs submitted with Form WR-35 for the Belle Unit 3H. A Cement Bond Log has been included with this submittal.

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

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

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

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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 - 10144 Farm name Eddy F. Landrum Well number Ericson Unit 3H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
			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)
			SEE ATTACHED EXHIBIT 2					

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Please insert additional pages as applicable.

API 47- 085 - 10144 Farm name Eddy F. Landrum Well number Ericson Unit 3H

PRODUCING FORMATION(S)	DEPTHS	
Marcellus	6299' (Top) TVD	6551' (Top) MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 3000 psi Bottom Hole --- psi DURATION OF TEST --- hrs

OPEN FLOW Gas 11159 mcfpd Oil 196 bpd NGL --- bpd Water 60 bpd GAS MEASURED BY Estimated Orifice Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H ₂ S, ETC)
	0		0		
SEE ATTACHED EXHIBIT 3					

Please insert additional pages as applicable.

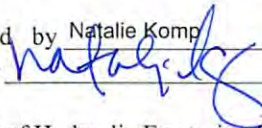
Drilling Contractor Precision Drilling Company, LP
Address 2640 Reach Road City Williamsport State PA Zip 17701

Logging Company Rush Wellsite Services
Address 600 Alpha Drive City Canonsburg State PA Zip 15317

Cementing Company Nabors Completion & Production Services, Co. (bought Superior)
Address 1650 Hackers Creek City Jane Lew State WV Zip 26378

Stimulating Company US Well Services
Address 533 Industrial Park Drive City Jane Lew State WV Zip 26378

Please insert additional pages as applicable.

Completed by Natalie Komp Telephone 303-357-6820
Signature  Title Permitting Agent Date 2/9/2016

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

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API 47-085-10144 Farm Name Eddy F. Landrum Well Number Ericson Unit 3H

EXHIBIT 1

Stage No.	Perforation Date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formations
1	31-Jul-15	12,890	13,056	60	Marcellus
2	21-Aug-15	12,693	12,859	60	Marcellus
3	21-Aug-15	12,496	12,662	60	Marcellus
4	21-Aug-15	12,299	12,465	60	Marcellus
5	21-Aug-15	12,103	12,269	60	Marcellus
6	22-Aug-15	11,906	12,072	60	Marcellus
7	22-Aug-15	11,709	11,875	60	Marcellus
8	22-Aug-15	11,512	11,678	60	Marcellus
9	23-Aug-15	11,315	11,481	60	Marcellus
10	23-Aug-15	11,118	11,284	60	Marcellus
11	23-Aug-15	10,921	11,087	60	Marcellus
12	23-Aug-15	10,724	10,891	60	Marcellus
13	25-Aug-15	10,528	10,694	60	Marcellus
14	25-Aug-15	10,331	10,497	60	Marcellus
15	26-Aug-15	10,134	10,300	60	Marcellus
16	26-Aug-15	9,937	10,103	60	Marcellus
17	26-Aug-15	9,740	9,906	60	Marcellus
18	28-Aug-15	9,543	9,709	60	Marcellus
19	28-Aug-15	9,346	9,513	60	Marcellus
20	28-Aug-15	9,150	9,316	60	Marcellus
21	29-Aug-15	8,953	9,119	60	Marcellus
22	29-Aug-15	8,756	8,922	60	Marcellus
23	29-Aug-15	8,559	8,725	60	Marcellus
24	29-Aug-15	8,362	8,528	60	Marcellus
25	30-Aug-15	8,165	8,331	60	Marcellus
26	30-Aug-15	7,968	8,135	60	Marcellus
27	30-Aug-15	7,772	7,938	60	Marcellus
28	30-Aug-15	7,575	7,741	60	Marcellus
29	30-Aug-15	7,378	7,544	60	Marcellus
30	31-Aug-15	7,181	7,347	60	Marcellus
31	31-Aug-15	6,984	7,150	60	Marcellus
32	31-Aug-15	6,787	6,953	60	Marcellus
33	1-Sep-15	6,590	6,756	60	Marcellus

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EXHIBIT 2

Stage No.	Stimulations Date	Avg Pump Rate	Avg Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/ other (units)
1	20-Aug-15	63.1	7,217	N/A	3,988	214,160	7,085	N/A
2	21-Aug-15	68.5	7,119	6,204	2,803	237,910	6,840	N/A
3	21-Aug-15	66.2	6,930	6,417	4,027	237,750	6,929	N/A
4	21-Aug-15	64.9	6,894	6,277	3,275	238,760	6,628	N/A
5	21-Aug-15	65.4	7,115	6,649	3,760	237,580	6,482	N/A
6	22-Aug-15	65.2	6,867	7,018	4,515	193,830	6,827	N/A
7	22-Aug-15	67.8	6,674	6,014	3,028	235,840	6,258	N/A
8	22-Aug-15	66.1	6,829	5,863	4,034	171,680	6,846	N/A
9	23-Aug-15	67.2	6,990	6,507	2,993	237,780	6,453	N/A
10	23-Aug-15	67.8	6,613	6,059	2,852	238,310	6,230	N/A
11	23-Aug-15	68.3	6,713	5,856	2,906	205,710	6,523	N/A
12	23-Aug-15	69.7	6,878	6,484	5,275	157,160	6,497	N/A
13	25-Aug-15	65.8	6,716	N/A	3,198	237,860	6,341	N/A
14	25-Aug-15	63.8	7,251	6,584	5,052	154,040	6,214	N/A
15	26-Aug-15	63.4	6,789	5,859	3,138	150,354	6,722	N/A
16	26-Aug-15	65.6	6,734	6,019	2,788	235,350	6,710	N/A
17	26-Aug-15	30.7	8,468	6,243	4,759	2,620	3,535	N/A
18	28-Aug-15	56.3	7,360	9,033	4,104	114,015	5,616	N/A
19	28-Aug-15	63.7	6,475	5,923	3,938	172,086	5,830	N/A
20	28-Aug-15	56.0	6,431	7,350	3,527	221,680	6,249	N/A
21	29-Aug-15	58.7	5,877	5,754	2,592	239,438	6,051	N/A
22	29-Aug-15	63.5	5,972	5,769	2,892	234,546	5,673	N/A
23	29-Aug-15	60.1	6,401	5,590	3,300	113,830	5,610	N/A
24	29-Aug-15	54.7	6,212	5,682	4,951	171,860	6,073	N/A
25	30-Aug-15	60.4	6,017	6,107	2,914	228,590	5,759	N/A
26	30-Aug-15	62.5	6,194	5,418	3,372	115,340	5,686	N/A
27	30-Aug-15	61.2	6,288	5,570	4,230	210,800	5,635	N/A
28	30-Aug-15	56.3	6,957	6,280	4,481	116,560	5,880	N/A
29	30-Aug-15	61.2	5,886	6,059	3,818	234,100	5,702	N/A
30	31-Aug-15	58.2	5,890	5,611	3,593	226,920	5,663	N/A
31	31-Aug-15	61.0	5,661	5,911	3,450	228,980	5,568	N/A
32	31-Aug-15	53.1	5,882	5,826	4,538	93,830	6,234	N/A
33	1-Sep-15	62.8	5,614	6,027	3,170	223,490	5,976	N/A
	AVG=	61.8	6,603	6,192	3,675	6,332,759	202,325	TOTAL

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EXHIBIT 3

LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)
	From Surface	From Surface	From Surface	From Surface
Fresh Water	216'	N/A	216'	N/A
Silty Shale	0	176	0	176
Coal	est 176	236	est 176	236
Sandstone	est 236	316	est 236	316
Coal	est 316	376	est 316	376
Sandstone	est 376	396	est 376	396
Silty Shale	est 396	416	est 396	416
Sandstone	est 416	516	est 416	516
Coal	est 516	576	est 516	576
Sandstone	est 576	616	est 576	616
Sandy Shale	est 616	736	est 616	736
Shale	est 736	776	est 736	776
Sandy Siltstone	est 776	876	est 776	876
Shale	est 876	926	est 876	926
Sandstone	est 926	976	est 926	976
Coal	est 976	1,036	est 976	1,036
Shale	est 1036	1,056	est 1036	1,056
Coal	est 1056	1,246	est 1056	1,246
Shale	est 1246	1,336	est 1246	1,336
Sandstone	est 1336	1,416	est 1336	1,416
Shale	est 1416	1,516	est 1416	1,516
Sandy Siltstone/Coal	est 1516	1,596	est 1516	1,596
Silty Sandstone	est 1596	1,716	est 1596	1,716
Coal	est 1716	1,776	est 1716	1,776
Sandy Shale/Coal	est 1776	1,871	est 1776	1,877
Big Lime	1,871	2,013	1,877	2,019
Big Injun	2,013	2,741	2,019	2,747
Fifty Foot Sandstone	2,741	2,861	2,747	2,867
Gordon	2,861	3,295	2,867	3,301
Bayard	3,295	4,036	3,301	4,042
Baltown	4,036	4,502	4,042	4,508
Bradford	4,502	4,892	4,508	4,898
Benson	4,892	5,122	4,898	5,128
Alexander	5,122	6,042	5,128	6,093
Sycamore	6,042	6,138	6,093	6,216
Middlesex	6,138	6,246	6,216	6,400
Burkett	6,246	6,276	6,400	6,475
Tully	6,276	6,299	6,475	6,551
Marcellus	6,299	NA	6,551	NA

*Please note Antero determines shallow 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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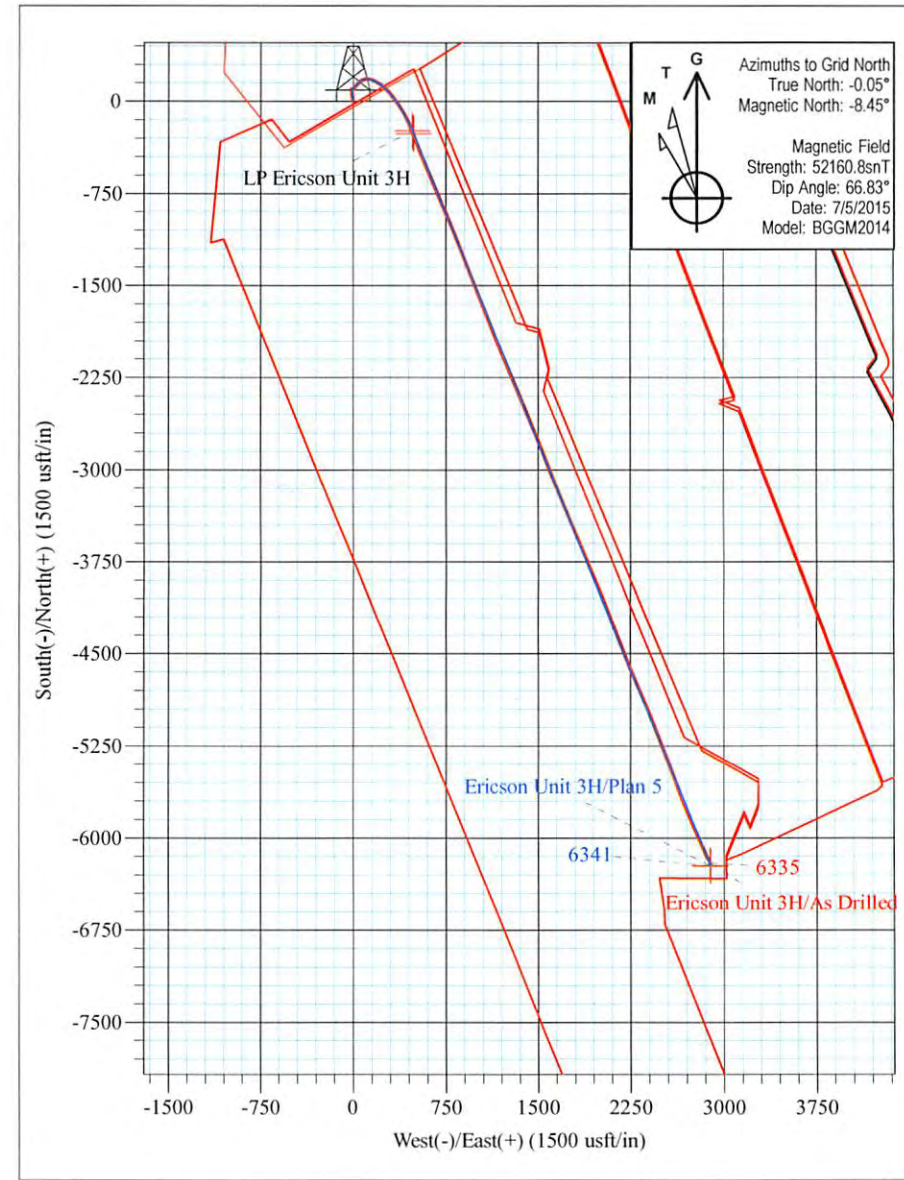
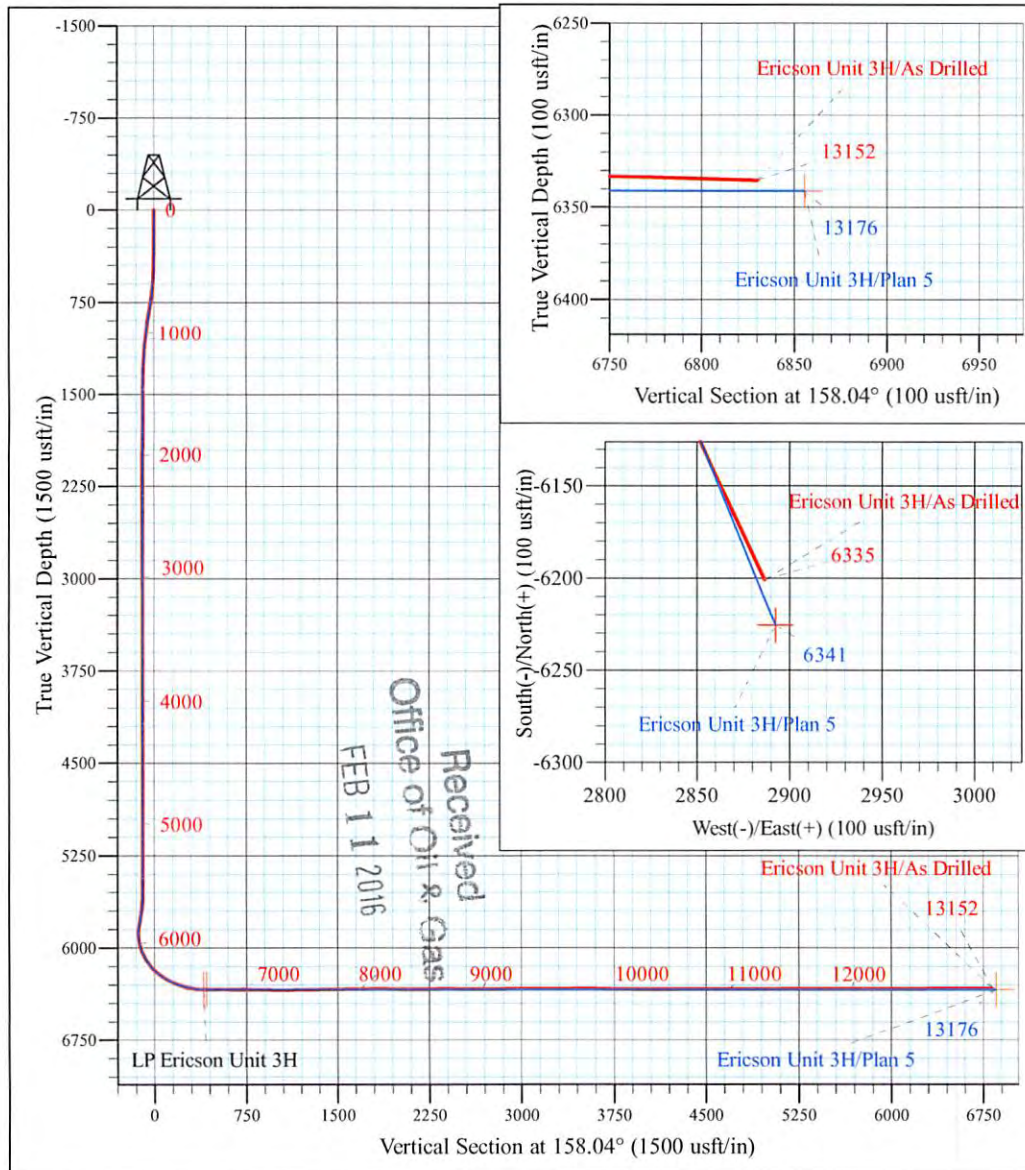
Annie Horizontal Pad: Belle/Ericson
 Ericson Unit 3H
 Plan 5
 Precision 523: GL 1004' + KB 19' @ 1023.0usft
 Ritchie County WV

PROJECT DETAILS:
 Geodetic System: Universal Transverse Mercator (US Survey Feet)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone: Zone 17N (84 W to 78 W)
 System Datum: Mean Sea Level



WELL DETAILS: **Ericson Unit 3H SHL**

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14281132.70	1661470.69	39° 19' 38.460 N	80° 55' 31.973 W



Ericson Unit 3H
Approx. BHL
 39° 18' 37.123 N 80° 54' 55.298 W

Shane Rhodes
 15:27, July 28 2015
 Scientific Drilling International
 124 Vista Drive
 Charleroi, PA 15022



Antero

Ritchie County WV
Annie Horizontal Pad: Belle/Ericson
Ericson Unit 3H

Original Wellpath

Design: As Drilled

Standard Survey Report

31 July, 2015



www.scientificdrilling.com

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Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Ericson Unit 3H
Project:	Ritchie County WV	TVD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site:	Annie Horizontal Pad: Belle/Ericson	MD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well:	Ericson Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Project	Ritchie County WV, Ritchie County WV, WV North		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Annie Horizontal Pad: Belle/Ericson, SHL Belle Unit 3H				
Site Position:		Northing:	14,281,134.20 usft	Latitude:	39° 19' 38.474 N
From:	Map	Easting:	1,661,500.66 usft	Longitude:	80° 55' 31.591 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.05 °

Well	Ericson Unit 3H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,281,132.70 usft	Latitude:	39° 19' 38.460 N
	+E/-W	0.0 usft	Easting:	1,661,470.69 usft	Longitude:	80° 55' 31.973 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,023.0 usft	Ground Level:	1,004.0 usft

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	7/5/2015	-8.40	66.83	52,161

Design	As Drilled				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	158.04	

Survey Program	Date	7/31/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
106.0	5,316.0	Survey #6 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
5,348.0	13,152.0	Survey #7 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
106.0	0.19	158.21	106.0	-0.2	0.1	0.2	0.18	0.18	0.00	
First SDI Gyro @ 106 MD										
131.0	0.28	191.79	131.0	-0.3	0.1	0.3	0.64	0.36	134.32	
156.0	0.23	210.13	156.0	-0.4	0.0	0.3	0.38	-0.20	73.36	
181.0	0.17	221.51	181.0	-0.4	0.0	0.4	0.29	-0.24	45.52	
206.0	0.25	187.93	206.0	-0.5	-0.1	0.5	0.57	0.32	134.32	
231.0	0.32	201.85	231.0	-0.6	-0.1	0.6	0.39	0.28	55.68	
256.0	0.28	193.64	256.0	-0.8	-0.1	0.7	0.23	-0.18	32.81	
281.0	0.41	117.54	281.0	-0.9	-0.1	0.8	1.75	0.52	-304.40	

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Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Ericson Unit 3H
Project:	Ritchie County WV	TVD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site:	Annie Horizontal Pad: Belle/Ericson	MD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well:	Ericson Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
306.0	0.49	128.16	306.0	-1.0	0.1	0.9	0.46	0.32	42.48	
331.0	0.19	171.51	331.0	-1.1	0.2	1.1	1.50	-1.20	173.40	
356.0	0.19	164.87	356.0	-1.2	0.2	1.2	0.09	0.00	-26.56	
381.0	0.29	326.03	381.0	-1.1	0.2	1.1	1.90	0.40	644.64	
406.0	0.81	330.12	406.0	-0.9	0.1	0.9	2.08	2.08	16.36	
431.0	1.23	335.57	431.0	-0.5	-0.1	0.5	1.72	1.68	21.80	
456.0	1.41	337.03	456.0	0.0	-0.4	-0.1	0.73	0.72	5.84	
481.0	2.05	347.84	481.0	0.7	-0.6	-0.9	2.86	2.56	43.24	
506.0	2.50	348.59	506.0	1.7	-0.8	-1.8	1.80	1.80	3.00	
531.0	3.05	351.15	530.9	2.9	-1.0	-3.0	2.25	2.20	10.24	
556.0	3.75	351.32	555.9	4.3	-1.2	-4.5	2.80	2.80	0.68	
581.0	4.56	352.23	580.8	6.1	-1.5	-6.2	3.25	3.24	3.64	
606.0	5.05	351.51	605.7	8.2	-1.8	-8.3	1.97	1.96	-2.88	
631.0	5.85	352.03	630.6	10.6	-2.1	-10.6	3.21	3.20	2.08	
656.0	6.47	353.06	655.5	13.2	-2.5	-13.2	2.52	2.48	4.12	
681.0	6.99	353.00	680.3	16.1	-2.8	-16.0	2.08	2.08	-0.24	
706.0	7.70	351.95	705.1	19.3	-3.2	-19.1	2.89	2.84	-4.20	
731.0	8.52	351.48	729.8	22.8	-3.7	-22.5	3.29	3.28	-1.88	
756.0	9.07	350.97	754.5	26.6	-4.3	-26.2	2.22	2.20	-2.04	
781.0	9.35	351.74	779.2	30.5	-4.9	-30.1	1.22	1.12	3.08	
806.0	9.63	352.97	803.9	34.6	-5.5	-34.1	1.38	1.12	4.92	
831.0	9.62	352.98	828.5	38.7	-6.0	-38.2	0.04	-0.04	0.04	
856.0	9.76	352.97	853.2	42.9	-6.5	-42.2	0.56	0.56	-0.04	
881.0	9.69	353.16	877.8	47.1	-7.0	-46.3	0.31	-0.28	0.76	
906.0	9.32	353.54	902.5	51.2	-7.5	-50.3	1.50	-1.48	1.52	
931.0	8.51	353.52	927.2	55.1	-7.9	-54.0	3.24	-3.24	-0.08	
956.0	8.00	353.82	951.9	58.6	-8.3	-57.5	2.05	-2.04	1.20	
981.0	7.63	353.56	976.7	62.0	-8.7	-60.8	1.49	-1.48	-1.04	
1,006.0	7.11	354.85	1,001.5	65.2	-9.0	-63.8	2.18	-2.08	5.16	
1,031.0	6.71	354.46	1,026.3	68.2	-9.3	-66.7	1.61	-1.60	-1.56	
1,056.0	6.20	355.48	1,051.1	71.0	-9.5	-69.4	2.09	-2.04	4.08	
1,081.0	5.79	355.99	1,076.0	73.6	-9.7	-71.9	1.65	-1.64	2.04	
1,106.0	5.45	355.86	1,100.9	76.0	-9.9	-74.2	1.36	-1.36	-0.52	
1,131.0	4.93	355.89	1,125.8	78.3	-10.1	-76.4	2.08	-2.08	0.12	
1,156.0	4.63	355.77	1,150.7	80.4	-10.2	-78.4	1.20	-1.20	-0.48	
1,181.0	4.15	355.73	1,175.6	82.3	-10.4	-80.2	1.92	-1.92	-0.16	
1,206.0	3.77	356.40	1,200.6	84.0	-10.5	-81.8	1.53	-1.52	2.68	
1,231.0	3.38	357.88	1,225.5	85.6	-10.6	-83.3	1.60	-1.56	5.92	
1,256.0	3.09	356.52	1,250.5	87.0	-10.6	-84.6	1.20	-1.16	-5.44	
1,281.0	2.69	357.74	1,275.4	88.2	-10.7	-85.8	1.62	-1.60	4.88	
1,306.0	2.38	355.70	1,300.4	89.3	-10.8	-86.9	1.29	-1.24	-8.16	
1,331.0	2.19	357.42	1,325.4	90.3	-10.8	-87.8	0.81	-0.76	6.88	
1,356.0	2.02	359.62	1,350.4	91.2	-10.9	-88.7	0.75	-0.68	8.80	

Received
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Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Ericson Unit 3H
Project:	Ritchie County WV	TVD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site:	Annie Horizontal Pad: Belle/Ericson	MD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well:	Ericson Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,381.0	1.70	0.10	1,375.4	92.1	-10.9	-89.4	1.28	-1.28	1.92
1,406.0	1.58	359.16	1,400.3	92.8	-10.9	-90.1	0.49	-0.48	-3.76
1,431.0	1.54	359.21	1,425.3	93.5	-10.9	-90.7	0.16	-0.16	0.20
1,456.0	1.36	353.99	1,450.3	94.1	-10.9	-91.3	0.89	-0.72	-20.88
1,481.0	1.11	351.38	1,475.3	94.6	-11.0	-91.9	1.02	-1.00	-10.44
1,506.0	1.19	358.35	1,500.3	95.1	-11.0	-92.3	0.64	0.32	27.88
1,531.0	0.90	354.72	1,525.3	95.6	-11.0	-92.8	1.19	-1.16	-14.52
1,556.0	0.72	350.62	1,550.3	95.9	-11.1	-93.1	0.76	-0.72	-16.40
1,581.0	0.57	343.32	1,575.3	96.2	-11.1	-93.4	0.68	-0.60	-29.20
1,606.0	0.62	350.94	1,600.3	96.4	-11.2	-93.6	0.37	0.20	30.48
1,631.0	0.63	355.31	1,625.3	96.7	-11.2	-93.9	0.19	0.04	17.48
1,656.0	0.58	357.90	1,650.3	97.0	-11.3	-94.2	0.23	-0.20	10.36
1,681.0	0.56	349.20	1,675.3	97.2	-11.3	-94.4	0.35	-0.08	-34.80
1,706.0	0.56	357.01	1,700.3	97.5	-11.3	-94.6	0.31	0.00	31.24
1,731.0	0.58	352.50	1,725.3	97.7	-11.3	-94.9	0.20	0.08	-18.04
1,756.0	0.38	328.27	1,750.3	97.9	-11.4	-95.1	1.12	-0.80	-96.92
1,781.0	0.16	285.76	1,775.3	98.0	-11.5	-95.2	1.13	-0.88	-170.04
1,806.0	0.23	272.91	1,800.3	98.0	-11.6	-95.2	0.33	0.28	-51.40
1,831.0	0.28	269.60	1,825.3	98.0	-11.7	-95.3	0.21	0.20	-13.24
1,856.0	0.30	270.76	1,850.3	98.0	-11.8	-95.3	0.08	0.08	4.64
1,881.0	0.26	284.01	1,875.3	98.0	-11.9	-95.4	0.30	-0.16	53.00
1,906.0	0.24	268.73	1,900.3	98.0	-12.0	-95.4	0.28	-0.08	-61.12
1,931.0	0.29	263.86	1,925.3	98.0	-12.1	-95.5	0.22	0.20	-19.48
1,956.0	0.25	270.88	1,950.3	98.0	-12.2	-95.5	0.21	-0.16	28.08
1,981.0	0.18	277.52	1,975.3	98.0	-12.3	-95.5	0.30	-0.28	26.56
2,006.0	0.27	262.07	2,000.3	98.0	-12.4	-95.6	0.43	0.36	-61.80
2,031.0	0.12	296.97	2,025.3	98.0	-12.5	-95.6	0.74	-0.60	139.60
2,056.0	0.13	272.84	2,050.3	98.0	-12.6	-95.6	0.21	0.04	-96.52
2,081.0	0.11	265.63	2,075.3	98.0	-12.6	-95.6	0.10	-0.08	-28.84
2,106.0	0.07	188.42	2,100.3	98.0	-12.7	-95.6	0.47	-0.16	-308.84
2,131.0	0.13	256.89	2,125.3	98.0	-12.7	-95.6	0.49	0.24	273.88
2,156.0	0.04	341.27	2,150.3	98.0	-12.7	-95.6	0.53	-0.36	337.52
2,181.0	0.05	14.58	2,175.3	98.0	-12.7	-95.7	0.11	0.04	133.24
2,206.0	0.02	9.75	2,200.3	98.0	-12.7	-95.7	0.12	-0.12	-19.32
2,231.0	0.07	300.74	2,225.3	98.1	-12.7	-95.7	0.26	0.20	-276.04
2,256.0	0.05	38.23	2,250.3	98.1	-12.7	-95.7	0.36	-0.08	389.96
2,281.0	0.12	280.70	2,275.3	98.1	-12.7	-95.7	0.60	0.28	-470.12
2,306.0	0.02	264.37	2,300.3	98.1	-12.8	-95.7	0.40	-0.40	-65.32
2,331.0	0.05	157.06	2,325.3	98.1	-12.8	-95.7	0.24	0.12	-429.24
2,356.0	0.02	341.50	2,350.3	98.1	-12.8	-95.7	0.28	-0.12	702.24
2,381.0	0.14	279.68	2,375.3	98.1	-12.8	-95.8	0.53	0.48	-247.28
2,406.0	0.16	206.74	2,400.3	98.1	-12.9	-95.7	0.72	0.08	-291.76
2,431.0	0.06	227.11	2,425.3	98.0	-12.9	-95.7	0.42	-0.40	81.48

Received
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SEP 11 2016



Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Ericson Unit 3H
Project:	Ritchie County WV	TVD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site:	Annie Horizontal Pad: Belle/Ericson	MD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well:	Ericson Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,456.0	0.06	23.03	2,450.3	98.0	-12.9	-95.7	0.47	0.00	623.68
2,481.0	0.05	134.56	2,475.3	98.0	-12.9	-95.7	0.36	-0.04	446.12
2,506.0	0.09	140.57	2,500.3	98.0	-12.8	-95.7	0.16	0.16	24.04
2,531.0	0.13	81.45	2,525.3	98.0	-12.8	-95.7	0.46	0.16	-236.48
2,556.0	0.04	246.24	2,550.3	98.0	-12.8	-95.7	0.68	-0.36	659.16
2,581.0	0.02	250.58	2,575.3	98.0	-12.8	-95.7	0.08	-0.08	17.36
2,606.0	0.03	212.21	2,600.3	98.0	-12.8	-95.7	0.08	0.04	-153.48
2,631.0	0.06	182.49	2,625.3	98.0	-12.8	-95.6	0.15	0.12	-118.88
2,656.0	0.15	199.82	2,650.3	97.9	-12.8	-95.6	0.38	0.36	69.32
2,681.0	0.14	225.67	2,675.3	97.9	-12.9	-95.6	0.26	-0.04	103.40
2,706.0	0.17	155.12	2,700.3	97.8	-12.9	-95.5	0.72	0.12	-282.20
2,731.0	0.16	156.60	2,725.3	97.7	-12.8	-95.4	0.04	-0.04	5.92
2,756.0	0.15	135.38	2,750.3	97.7	-12.8	-95.4	0.23	-0.04	-84.88
2,781.0	0.16	134.59	2,775.3	97.6	-12.7	-95.3	0.04	0.04	-3.16
2,806.0	0.16	142.08	2,800.3	97.6	-12.7	-95.3	0.08	0.00	29.96
2,831.0	0.23	133.26	2,825.3	97.5	-12.6	-95.2	0.30	0.28	-35.28
2,856.0	0.18	128.49	2,850.3	97.5	-12.6	-95.1	0.21	-0.20	-19.08
2,881.0	0.24	125.33	2,875.3	97.4	-12.5	-95.0	0.24	0.24	-12.64
2,906.0	0.14	105.87	2,900.3	97.4	-12.4	-95.0	0.47	-0.40	-77.84
2,931.0	0.20	117.74	2,925.3	97.3	-12.4	-94.9	0.28	0.24	47.48
2,956.0	0.19	106.95	2,950.3	97.3	-12.3	-94.8	0.15	-0.04	-43.16
2,981.0	0.20	113.41	2,975.3	97.3	-12.2	-94.8	0.10	0.04	25.84
3,006.0	0.26	103.25	3,000.3	97.2	-12.1	-94.7	0.29	0.24	-40.64
3,031.0	0.20	103.51	3,025.3	97.2	-12.0	-94.7	0.24	-0.24	1.04
3,056.0	0.27	111.45	3,050.3	97.2	-11.9	-94.6	0.31	0.28	31.76
3,081.0	0.24	111.84	3,075.3	97.2	-11.8	-94.5	0.12	-0.12	1.56
3,106.0	0.23	104.60	3,100.3	97.1	-11.7	-94.5	0.13	-0.04	-28.96
3,131.0	0.17	105.43	3,125.3	97.1	-11.6	-94.4	0.24	-0.24	3.32
3,156.0	0.24	111.15	3,150.3	97.1	-11.5	-94.3	0.29	0.28	22.88
3,181.0	0.15	114.51	3,175.3	97.0	-11.5	-94.3	0.36	-0.36	13.44
3,206.0	0.15	104.87	3,200.3	97.0	-11.4	-94.2	0.10	0.00	-38.56
3,231.0	0.26	110.29	3,225.3	97.0	-11.3	-94.2	0.45	0.44	21.68
3,256.0	0.27	110.83	3,250.3	96.9	-11.2	-94.1	0.04	0.04	2.16
3,281.0	0.18	115.90	3,275.3	96.9	-11.1	-94.0	0.37	-0.36	20.28
3,306.0	0.18	104.92	3,300.3	96.9	-11.0	-94.0	0.14	0.00	-43.92
3,331.0	0.19	109.06	3,325.3	96.9	-11.0	-93.9	0.07	0.04	16.56
3,356.0	0.19	111.94	3,350.3	96.8	-10.9	-93.9	0.04	0.00	11.52
3,381.0	0.17	108.74	3,375.3	96.8	-10.8	-93.8	0.09	-0.08	-12.80
3,406.0	0.18	109.19	3,400.3	96.8	-10.7	-93.8	0.04	0.04	1.68
3,431.0	0.10	94.52	3,425.3	96.8	-10.7	-93.7	0.35	-0.32	-58.68
3,456.0	0.16	105.17	3,450.3	96.8	-10.6	-93.7	0.26	0.24	42.60
3,481.0	0.13	123.58	3,475.3	96.7	-10.6	-93.7	0.22	-0.12	73.64
3,506.0	0.15	102.42	3,500.3	96.7	-10.5	-93.6	0.22	0.08	-84.64
3,531.0	0.14	99.33	3,525.3	96.7	-10.5	-93.6	0.05	-0.04	-12.36

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Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Ericson Unit 3H
Project:	Ritchie County WV	TVD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site:	Annie Horizontal Pad: Belle/Ericson	MD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well:	Ericson Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,556.0	0.12	96.45	3,550.3	96.7	-10.4	-93.6	0.08	-0.08	-11.52
3,581.0	0.14	93.84	3,575.3	96.7	-10.3	-93.5	0.08	0.08	-10.44
3,606.0	0.21	89.49	3,600.3	96.7	-10.3	-93.5	0.28	0.28	-17.40
3,631.0	0.21	91.36	3,625.3	96.7	-10.2	-93.5	0.03	0.00	7.48
3,656.0	0.14	89.02	3,650.3	96.7	-10.1	-93.4	0.28	-0.28	-9.36
3,681.0	0.15	104.31	3,675.3	96.7	-10.0	-93.4	0.16	0.04	61.16
3,706.0	0.23	106.01	3,700.3	96.6	-10.0	-93.4	0.32	0.32	6.80
3,731.0	0.14	88.73	3,725.3	96.6	-9.9	-93.3	0.42	-0.36	-69.12
3,756.0	0.15	67.42	3,750.3	96.6	-9.8	-93.3	0.22	0.04	-85.24
3,781.0	0.25	89.83	3,775.3	96.7	-9.7	-93.3	0.50	0.40	89.64
3,806.0	0.15	76.05	3,800.3	96.7	-9.6	-93.3	0.44	-0.40	-55.12
3,831.0	0.18	78.66	3,825.3	96.7	-9.6	-93.2	0.12	0.12	10.44
3,856.0	0.14	84.76	3,850.3	96.7	-9.5	-93.2	0.17	-0.16	24.40
3,881.0	0.20	81.18	3,875.3	96.7	-9.4	-93.2	0.24	0.24	-14.32
3,906.0	0.19	84.45	3,900.3	96.7	-9.4	-93.2	0.06	-0.04	13.08
3,931.0	0.22	81.46	3,925.3	96.7	-9.3	-93.2	0.13	0.12	-11.96
3,956.0	0.26	85.66	3,950.3	96.7	-9.2	-93.1	0.17	0.16	16.80
3,981.0	0.33	75.36	3,975.3	96.8	-9.0	-93.1	0.35	0.28	-41.20
4,006.0	0.36	83.12	4,000.3	96.8	-8.9	-93.1	0.22	0.12	31.04
4,031.0	0.38	65.27	4,025.3	96.8	-8.7	-93.1	0.47	0.08	-71.40
4,056.0	0.36	73.43	4,050.3	96.9	-8.6	-93.1	0.23	-0.08	32.64
4,081.0	0.58	75.36	4,075.3	96.9	-8.4	-93.0	0.88	0.88	7.72
4,106.0	0.58	74.89	4,100.3	97.0	-8.1	-93.0	0.02	0.00	-1.88
4,131.0	0.56	66.14	4,125.3	97.1	-7.9	-93.0	0.36	-0.08	-35.00
4,156.0	0.58	65.94	4,150.3	97.2	-7.7	-93.0	0.08	0.08	-0.80
4,181.0	0.54	58.45	4,175.3	97.3	-7.5	-93.0	0.33	-0.16	-29.96
4,206.0	0.50	55.21	4,200.3	97.4	-7.3	-93.1	0.20	-0.16	-12.96
4,231.0	0.51	59.53	4,225.3	97.5	-7.1	-93.1	0.16	0.04	17.28
4,256.0	0.47	77.18	4,250.3	97.6	-6.9	-93.1	0.62	-0.16	70.60
4,281.0	0.54	73.67	4,275.3	97.7	-6.7	-93.1	0.31	0.28	-14.04
4,306.0	0.51	69.48	4,300.3	97.8	-6.5	-93.1	0.19	-0.12	-16.76
4,331.0	0.56	69.41	4,325.3	97.8	-6.2	-93.1	0.20	0.20	-0.28
4,356.0	0.58	69.18	4,350.3	97.9	-6.0	-93.1	0.08	0.08	-0.92
4,381.0	0.56	65.46	4,375.3	98.0	-5.8	-93.1	0.17	-0.08	-14.88
4,406.0	0.65	75.35	4,400.3	98.1	-5.5	-93.1	0.55	0.36	39.56
4,431.0	0.63	70.49	4,425.3	98.2	-5.3	-93.0	0.23	-0.08	-19.44
4,456.0	0.62	67.01	4,450.3	98.3	-5.0	-93.0	0.16	-0.04	-13.92
4,481.0	0.58	67.19	4,475.3	98.4	-4.8	-93.0	0.16	0.16	0.72
4,506.0	0.60	65.14	4,500.3	98.5	-4.5	-93.0	0.12	0.08	-8.20
4,531.0	0.58	65.99	4,525.3	98.6	-4.3	-93.1	0.09	-0.08	3.40
4,556.0	0.69	65.99	4,550.3	98.7	-4.0	-93.1	0.44	0.44	0.00
4,581.0	0.62	65.94	4,575.3	98.8	-3.8	-93.1	0.28	-0.28	-0.20
4,606.0	0.64	64.05	4,600.3	98.9	-3.5	-93.1	0.12	0.08	-7.56

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Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Ericson Unit 3H
Project:	Ritchie County WV	TVD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site:	Annie Horizontal Pad: Belle/Ericson	MD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well:	Ericson Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,631.0	0.70	59.56	4,625.3	99.1	-3.3	-93.1	0.32	0.24	-17.96	
4,656.0	0.69	65.84	4,650.3	99.2	-3.0	-93.1	0.31	-0.04	25.12	
4,681.0	0.65	66.98	4,675.3	99.3	-2.7	-93.2	0.17	-0.16	4.56	
4,706.0	0.67	67.74	4,700.3	99.4	-2.5	-93.2	0.09	0.08	3.04	
4,731.0	0.77	66.03	4,725.3	99.6	-2.2	-93.2	0.41	0.40	-6.84	
4,756.0	0.67	61.78	4,750.3	99.7	-1.9	-93.2	0.45	-0.40	-17.00	
4,781.0	0.70	65.12	4,775.2	99.8	-1.6	-93.2	0.20	0.12	13.36	
4,806.0	0.63	64.91	4,800.2	100.0	-1.4	-93.2	0.28	-0.28	-0.84	
4,831.0	0.67	65.14	4,825.2	100.1	-1.1	-93.2	0.16	0.16	0.92	
4,856.0	0.65	70.52	4,850.2	100.2	-0.9	-93.2	0.26	-0.08	21.52	
4,881.0	0.68	65.38	4,875.2	100.3	-0.6	-93.2	0.27	0.12	-20.56	
4,906.0	0.73	68.15	4,900.2	100.4	-0.3	-93.3	0.24	0.20	11.08	
4,931.0	0.74	66.26	4,925.2	100.5	0.0	-93.3	0.10	0.04	-7.56	
4,956.0	0.77	64.68	4,950.2	100.7	0.3	-93.3	0.15	0.12	-6.32	
4,981.0	0.68	65.70	4,975.2	100.8	0.6	-93.3	0.36	-0.36	4.08	
5,006.0	0.74	61.94	5,000.2	101.0	0.9	-93.3	0.30	0.24	-15.04	
5,031.0	0.74	58.35	5,025.2	101.1	1.1	-93.4	0.19	0.00	-14.36	
5,056.0	0.72	58.36	5,050.2	101.3	1.4	-93.4	0.08	-0.08	0.04	
5,081.0	0.80	61.76	5,075.2	101.4	1.7	-93.5	0.37	0.32	13.60	
5,106.0	0.77	62.09	5,100.2	101.6	2.0	-93.5	0.12	-0.12	1.32	
5,131.0	0.83	62.76	5,125.2	101.8	2.3	-93.5	0.24	0.24	2.68	
5,156.0	0.81	58.84	5,150.2	101.9	2.6	-93.6	0.24	-0.08	-15.68	
5,181.0	0.72	57.25	5,175.2	102.1	2.9	-93.6	0.37	-0.36	-6.36	
5,206.0	0.89	63.57	5,200.2	102.3	3.2	-93.7	0.77	0.68	25.28	
5,231.0	0.86	64.97	5,225.2	102.5	3.6	-93.7	0.15	-0.12	5.60	
5,256.0	0.94	72.74	5,250.2	102.6	3.9	-93.7	0.58	0.32	31.08	
5,281.0	0.99	69.30	5,275.2	102.7	4.3	-93.7	0.31	0.20	-13.76	
5,306.0	0.91	67.93	5,300.2	102.9	4.7	-93.7	0.33	-0.32	-5.48	
5,316.0	0.96	65.97	5,310.2	103.0	4.9	-93.7	0.59	0.50	-19.60	
Last SDI Gyro @ 5316 MD										
5,348.0	1.07	70.25	5,342.2	103.2	5.4	-93.7	0.42	0.34	13.38	
First SDI MWD @ 5348 MD										
5,381.0	1.08	66.98	5,375.2	103.4	6.0	-93.7	0.19	0.03	-9.91	
5,411.0	1.21	70.79	5,405.2	103.6	6.5	-93.6	0.50	0.43	12.70	
5,441.0	1.20	72.76	5,435.2	103.8	7.1	-93.6	0.14	-0.03	6.57	
5,470.0	1.17	77.15	5,464.2	104.0	7.7	-93.5	0.33	-0.10	15.14	
5,500.0	1.08	82.79	5,494.2	104.1	8.3	-93.4	0.48	-0.30	18.80	
5,530.0	0.96	89.78	5,524.2	104.1	8.8	-93.2	0.58	-0.40	23.30	
5,560.0	1.48	60.15	5,554.2	104.3	9.4	-93.2	2.67	1.73	-98.77	
5,590.0	3.30	41.03	5,584.1	105.1	10.3	-93.7	6.54	6.07	-63.73	
5,620.0	5.43	35.63	5,614.0	106.9	11.7	-94.8	7.22	7.10	-18.00	
5,649.0	7.72	33.73	5,642.8	109.7	13.6	-96.6	7.93	7.90	-6.55	
5,679.0	10.33	33.93	5,672.5	113.6	16.2	-99.3	8.70	8.70	0.67	
5,709.0	13.49	35.14	5,701.8	118.7	19.7	-102.7	10.57	10.53	4.03	

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Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Ericson Unit 3H
Project:	Ritchie County WV	TVD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site:	Annie Horizontal Pad: Belle/Ericson	MD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well:	Ericson Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,739.0	16.74	37.04	5,730.8	125.0	24.3	-106.8	10.96	10.83	6.33
5,769.0	19.84	39.42	5,759.3	132.4	30.2	-111.5	10.63	10.33	7.93
5,799.0	23.11	41.46	5,787.2	140.7	37.3	-116.6	11.18	10.90	6.80
5,829.0	25.75	44.47	5,814.5	149.8	45.8	-121.8	9.73	8.80	10.03
5,859.0	26.71	51.88	5,841.4	158.6	55.6	-126.3	11.37	3.20	24.70
5,889.0	27.29	60.74	5,868.1	166.1	66.9	-129.0	13.54	1.93	29.53
5,918.0	27.74	68.91	5,893.9	171.8	79.0	-129.8	13.10	1.55	28.17
5,948.0	27.96	75.22	5,920.4	176.1	92.4	-128.8	9.85	0.73	21.03
5,978.0	28.67	84.10	5,946.8	178.6	106.3	-125.9	14.23	2.37	29.60
6,007.0	29.29	93.81	5,972.2	178.9	120.3	-120.9	16.35	2.14	33.48
6,037.0	30.93	102.42	5,998.2	176.7	135.2	-113.4	15.39	5.47	28.70
6,067.0	32.66	107.89	6,023.7	172.6	150.4	-103.8	11.20	5.77	18.23
6,097.0	34.18	112.01	6,048.7	167.0	165.9	-92.8	9.10	5.07	13.73
6,127.0	34.25	117.13	6,073.5	159.9	181.3	-80.5	9.60	0.23	17.07
6,157.0	35.71	121.67	6,098.1	151.5	196.2	-67.1	9.94	4.87	15.13
6,187.0	38.97	125.07	6,122.0	141.5	211.4	-52.1	12.86	10.87	11.33
6,217.0	43.24	126.64	6,144.6	129.9	227.4	-35.5	14.64	14.23	5.23
6,235.0	45.49	127.80	6,157.4	122.3	237.4	-24.6	13.30	12.51	6.46
Middlesex @ 6235 MD									
6,247.0	47.00	128.53	6,165.7	116.9	244.2	-17.1	13.30	12.56	6.05
6,276.0	49.68	132.07	6,185.0	102.9	260.7	2.0	12.98	9.24	12.21
6,306.0	52.51	135.66	6,203.9	86.7	277.6	23.3	13.25	9.43	11.97
6,336.0	54.77	139.24	6,221.6	68.9	293.9	46.0	12.21	7.53	11.93
6,366.0	57.06	142.26	6,238.5	49.7	309.6	69.7	11.30	7.63	10.07
6,396.0	59.49	143.44	6,254.2	29.4	325.0	94.3	8.76	8.10	3.93
6,419.0	62.23	143.82	6,265.4	13.2	336.9	113.8	12.02	11.93	1.63
Burket @ 6419 MD									
6,425.0	62.95	143.91	6,268.2	8.9	340.0	118.9	12.02	11.93	1.58
6,455.0	66.53	144.35	6,281.0	-13.1	355.9	145.3	12.01	11.93	1.47
6,485.0	69.25	145.72	6,292.3	-35.9	371.9	172.3	10.00	9.07	4.57
6,494.0	70.00	146.23	6,295.4	-42.9	376.6	180.6	9.90	8.38	5.63
Tully @ 6494 MD									
6,515.0	71.77	147.39	6,302.3	-59.5	387.4	200.0	9.90	8.41	5.54
6,545.0	73.99	149.02	6,311.1	-83.8	402.5	228.3	9.04	7.40	5.43
6,570.0	75.94	150.73	6,317.6	-104.7	414.7	252.2	10.22	7.80	6.85
Marcellus @ 6570 MD									
6,575.0	76.33	151.07	6,318.8	-109.0	417.0	257.0	10.22	7.82	6.77
6,605.0	77.31	152.64	6,325.6	-134.7	430.8	286.0	6.05	3.27	5.23
6,634.0	78.89	154.19	6,331.6	-160.1	443.5	314.3	7.55	5.45	5.34
6,664.0	82.16	156.81	6,336.6	-187.0	455.8	343.9	13.89	10.90	8.73
6,694.0	87.08	158.77	6,339.4	-214.7	467.0	373.7	17.64	16.40	6.53
6,724.0	89.40	159.59	6,340.3	-242.7	477.7	403.7	8.20	7.73	2.73
6,813.0	90.50	158.18	6,340.4	-325.7	509.8	492.7	2.01	1.24	-1.58
6,903.0	89.60	158.10	6,340.3	-409.2	543.3	582.7	1.00	-1.00	-0.09

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Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Ericson Unit 3H
Project:	Ritchie County WV	TVD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site:	Annie Horizontal Pad: Belle/Ericson	MD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well:	Ericson Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,992.0	89.97	159.18	6,340.6	-492.1	575.7	671.7	1.28	0.42	1.21
7,081.0	89.09	156.68	6,341.4	-574.6	609.1	760.7	2.98	-0.99	-2.81
7,171.0	89.33	156.92	6,342.6	-657.3	644.6	850.7	0.38	0.27	0.27
7,261.0	89.66	156.79	6,343.4	-740.0	680.0	940.6	0.39	0.37	-0.14
7,350.0	90.13	157.09	6,343.6	-821.9	714.8	1,029.6	0.63	0.53	0.34
7,440.0	90.10	157.32	6,343.4	-904.9	749.7	1,119.6	0.26	-0.03	0.26
7,530.0	90.20	157.46	6,343.1	-988.0	784.3	1,209.6	0.19	0.11	0.16
7,619.0	90.71	158.34	6,342.4	-1,070.4	817.8	1,298.6	1.14	0.57	0.99
7,709.0	90.87	158.76	6,341.2	-1,154.2	850.7	1,388.6	0.50	0.18	0.47
7,798.0	91.01	158.65	6,339.7	-1,237.1	883.0	1,477.6	0.20	0.16	-0.12
7,888.0	89.87	157.95	6,339.0	-1,320.7	916.3	1,567.6	1.49	-1.27	-0.78
7,978.0	90.94	159.85	6,338.4	-1,404.7	948.7	1,657.5	2.42	1.19	2.11
8,068.0	90.97	159.60	6,336.9	-1,489.1	979.8	1,747.5	0.26	0.03	-0.28
8,157.0	90.44	158.30	6,335.8	-1,572.2	1,011.8	1,836.5	1.58	-0.60	-1.46
8,247.0	88.72	156.92	6,336.5	-1,655.4	1,046.1	1,926.5	2.45	-1.91	-1.53
8,336.0	89.77	159.10	6,337.6	-1,737.9	1,079.4	2,015.4	2.72	1.18	2.45
8,426.0	89.80	159.30	6,338.0	-1,822.0	1,111.4	2,105.4	0.22	0.03	0.22
8,515.0	90.64	157.80	6,337.6	-1,904.8	1,143.9	2,194.4	1.93	0.94	-1.69
8,605.0	90.70	158.00	6,336.6	-1,988.2	1,177.8	2,284.4	0.23	0.07	0.22
8,694.0	90.44	157.41	6,335.7	-2,070.6	1,211.5	2,373.4	0.72	-0.29	-0.66
8,784.0	89.26	157.78	6,335.9	-2,153.8	1,245.8	2,463.4	1.37	-1.31	0.41
8,873.0	90.03	157.53	6,336.5	-2,236.1	1,279.7	2,552.4	0.91	0.87	-0.28
8,963.0	90.10	156.72	6,336.4	-2,319.0	1,314.7	2,642.4	0.90	0.08	-0.90
9,052.0	90.30	157.00	6,336.1	-2,400.8	1,349.6	2,731.4	0.39	0.22	0.31
9,142.0	90.30	157.55	6,335.6	-2,483.9	1,384.4	2,821.4	0.61	0.00	0.61
9,232.0	90.13	157.23	6,335.3	-2,566.9	1,419.0	2,911.3	0.40	-0.19	-0.36
9,321.0	90.17	157.27	6,335.0	-2,649.0	1,453.4	3,000.3	0.06	0.04	0.04
9,411.0	90.07	158.16	6,334.8	-2,732.3	1,487.5	3,090.3	1.00	-0.11	0.99
9,500.0	90.27	157.78	6,334.6	-2,814.8	1,520.9	3,179.3	0.48	0.22	-0.43
9,590.0	89.63	158.72	6,334.7	-2,898.4	1,554.3	3,269.3	1.26	-0.71	1.04
9,679.0	90.23	159.42	6,334.8	-2,981.5	1,586.1	3,358.3	1.04	0.67	0.79
9,769.0	90.47	159.03	6,334.2	-3,065.7	1,618.0	3,448.3	0.51	0.27	-0.43
9,858.0	90.17	157.58	6,333.7	-3,148.4	1,650.9	3,537.3	1.66	-0.34	-1.63
9,948.0	88.93	157.51	6,334.4	-3,231.5	1,685.3	3,627.3	1.38	-1.38	-0.08
10,037.0	89.03	157.63	6,336.0	-3,313.8	1,719.2	3,716.3	0.18	0.11	0.13
10,127.0	89.33	158.39	6,337.3	-3,397.2	1,752.9	3,806.3	0.91	0.33	0.84
10,216.0	89.90	157.47	6,337.9	-3,479.7	1,786.4	3,895.3	1.22	0.64	-1.03
10,305.0	90.47	155.82	6,337.6	-3,561.4	1,821.6	3,984.2	1.96	0.64	-1.85
10,395.0	89.70	158.39	6,337.5	-3,644.3	1,856.6	4,074.2	2.98	-0.86	2.86
10,484.0	89.33	158.18	6,338.2	-3,727.0	1,889.6	4,163.2	0.48	-0.42	0.24
10,574.0	90.60	156.79	6,338.3	-3,810.1	1,924.0	4,253.2	2.09	1.41	-1.54
10,663.0	90.64	156.81	6,337.3	-3,891.9	1,959.1	4,342.2	0.05	0.04	0.02
10,753.0	90.84	156.80	6,336.2	-3,974.6	1,994.5	4,432.1	0.22	0.22	-0.01

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Scientific Drilling International
Survey Report



Company:	Antero	Local Co-ordinate Reference:	Well Ericson Unit 3H
Project:	Ritchie County WV	TVD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site:	Annie Horizontal Pad: Belle/Ericson	MD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well:	Ericson Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,842.0	89.13	157.86	6,336.2	-4,056.8	2,028.8	4,521.1	2.26	-1.92	1.19
10,931.0	89.97	159.33	6,336.9	-4,139.6	2,061.3	4,610.1	1.90	0.94	1.65
11,021.0	90.17	159.43	6,336.8	-4,223.8	2,093.0	4,700.1	0.25	0.22	0.11
11,110.0	90.13	159.15	6,336.5	-4,307.1	2,124.5	4,789.1	0.32	-0.04	-0.31
11,200.0	90.13	158.30	6,336.3	-4,391.0	2,157.1	4,879.1	0.94	0.00	-0.94
11,289.0	90.30	158.54	6,336.0	-4,473.7	2,189.9	4,968.1	0.33	0.19	0.27
11,379.0	90.40	158.99	6,335.5	-4,557.6	2,222.5	5,058.0	0.51	0.11	0.50
11,469.0	90.34	159.17	6,334.9	-4,641.7	2,254.6	5,148.0	0.21	-0.07	0.20
11,558.0	89.93	156.70	6,334.7	-4,724.1	2,288.0	5,237.0	2.81	-0.46	-2.78
11,648.0	89.93	156.57	6,334.8	-4,806.8	2,323.7	5,327.0	0.14	0.00	-0.14
11,737.0	89.87	156.81	6,334.9	-4,888.5	2,359.0	5,416.0	0.28	-0.07	0.27
11,826.0	89.97	157.11	6,335.1	-4,970.4	2,393.8	5,505.0	0.36	0.11	0.34
11,916.0	89.73	159.14	6,335.3	-5,053.9	2,427.3	5,594.9	2.27	-0.27	2.26
12,005.0	89.46	158.86	6,335.9	-5,137.0	2,459.2	5,683.9	0.44	-0.30	-0.31
12,095.0	89.66	158.60	6,336.6	-5,220.9	2,491.9	5,773.9	0.36	0.22	-0.29
12,184.0	90.10	159.16	6,336.8	-5,303.9	2,523.9	5,862.9	0.80	0.49	0.63
12,273.0	90.60	160.15	6,336.3	-5,387.3	2,554.9	5,951.9	1.25	0.56	1.11
12,363.0	90.64	158.55	6,335.3	-5,471.5	2,586.6	6,041.8	1.78	0.04	-1.78
12,453.0	89.66	159.47	6,335.0	-5,555.6	2,618.8	6,131.8	1.49	-1.09	1.02
12,542.0	89.63	160.49	6,335.6	-5,639.2	2,649.3	6,220.8	1.15	-0.03	1.15
12,631.0	90.34	158.64	6,335.6	-5,722.6	2,680.4	6,309.7	2.23	0.80	-2.08
12,721.0	90.34	158.75	6,335.1	-5,806.4	2,713.1	6,399.7	0.12	0.00	0.12
12,810.0	90.34	156.22	6,334.6	-5,888.6	2,747.2	6,488.7	2.84	0.00	-2.84
12,900.0	90.44	156.18	6,333.9	-5,971.0	2,783.5	6,578.7	0.12	0.11	-0.04
12,989.0	90.77	156.34	6,333.0	-6,052.5	2,819.3	6,667.6	0.41	0.37	0.18
13,078.0	88.86	155.62	6,333.3	-6,133.7	2,855.5	6,756.6	2.29	-2.15	-0.81
13,092.0	88.46	155.04	6,333.6	-6,146.5	2,861.4	6,770.5	5.03	-2.86	-4.14
Last SDI MWD @ 13092 MD									
13,152.0	88.46	155.04	6,335.2	-6,200.8	2,886.7	6,830.4	0.00	0.00	0.00
Projection To Bit @ 13152 MD / 6335 TVD									

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,235.0	6,157.4	Middlesex @ 6235 MD		0.00	
6,419.0	6,265.4	Burket @ 6419 MD		0.00	
6,494.0	6,295.4	Tully @ 6494 MD		0.00	
6,570.0	6,317.6	Marcellus @ 6570 MD		0.00	

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Company:	Antero	Local Co-ordinate Reference:	Well Ericson Unit 3H
Project:	Ritchie County WV	TVD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Site:	Annie Horizontal Pad: Belle/Ericson	MD Reference:	Precision 523: GL 1004' + KB 19' @ 1023.0usft
Well:	Ericson Unit 3H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
106.0	106.0	-0.2	0.1	First SDI Gyro @ 106 MD
5,316.0	5,310.2	103.0	4.9	Last SDI Gyro @ 5316 MD
5,348.0	5,342.2	103.2	5.4	First SDI MWD @ 5348 MD
13,092.0	6,333.6	-6,146.5	2,861.4	Last SDI MWD @ 13092 MD
13,152.0	6,335.2	-6,200.8	2,886.7	Projection To Bit @ 13152 MD / 6335 TVD

Checked By: _____ Approved By: _____ Date: _____

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FFR 11 2016

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	8/20/2015
Job End Date:	9/1/2015
State:	West Virginia
County:	Ritchie
API Number:	47-085-10144-00-00
Operator Name:	Antero Resources Corporation
Well Name and Number:	Ericson 3H
Longitude:	-80.92537500
Latitude:	39.32742500
Datum:	NAD83
Federal/Tribal Well:	NO
True Vertical Depth:	6,343
Total Base Water Volume (gal):	8,737,196
Total Base Non Water Volume:	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Antero Resources	Base Fluid					
			Water	7732-18-5	100.00000	91.49804	
Sand	U.S. Well Services, LLC	Proppant					
			Crystalline Silica, quartz	14808-60-7	100.00000	7.95182	
HCL Acid (12.6%-18.0%)	U.S. Well Services, LLC	Bulk Acid					
			Water	7732-18-5	87.50000	0.26318	
			Hydrogen Chloride	7647-01-0	18.00000	0.06286	
LGC-15	U.S. Well Services	Gelling Agents					
			Guar Gum	9000-30-0	50.00000	0.05277	
			Petroleum Distillates	64742-47-8	60.00000	0.04997	
			Suspending agent (solid)	14808-60-7	3.00000	0.00807	
			Surfactant	68439-51-0	3.00000	0.00317	
WFRA-405	U.S. Well Services	Friction Reducer					
			Water	7732-18-5	40.00000	0.02673	
			Anionic Polyacrylamide	Proprietary	40.00000	0.02673	
			Sodium Chloride	7647-14-5	20.00000	0.01337	
			Petroleum Distillates	64742-47-8	20.00000	0.01076	
			Ethoxylated alcohol blend	Proprietary	5.00000	0.00334	

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SI-1100	U.S. Well Services	Scale Inhibitor					
			Water	7732-18-5	80.00000	0.01092	
			Ethylene Glycol	107-21-1	25.00000	0.00386	
			Copolymer of Maleic and Acrylic acid	52255-49-9	10.00000	0.00161	
			Potassium salt of diethylene triamine penta (methylene phosphonic acid)	15827-60-8	7.50000	0.00138	
			Hexamethylene tramine penta (methylene phosphonic acid)	34690-00-1	5.00000	0.00089	
			Phosphino carboxylic acid polymer	71050-62-9	5.00000	0.00089	
			Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5	2.00000	0.00036	
K-BAC 1020	U.S. Well Services	Anti-Bacterial Agent					
			2,2-dibromo-3-nitropropionamide	10222-01-2	20.00000	0.00452	
			Deionized Water	7732-18-5	28.00000	0.00258	
AP One	U.S. Well Services	Gel Breakers					
			Ammonium Persulfate	7727-54-0	100.00000	0.00165	
AI-301	U.S. Well Services	Acid Corrosion Inhibitors					
			Diethylene Glycol	111-46-6	30.00000	0.00020	
			Methenamine	100-97-0	20.00000	0.00016	
			Hydrogen Chloride	7647-01-0	10.00000	0.00007	
			Polyethylene polyamine	68603-67-8	10.00000	0.00006	
			Coco amine	61791-14-8	5.00000	0.00003	

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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FF9 11 2016

LATITUDE 39°20'00" 2,512'

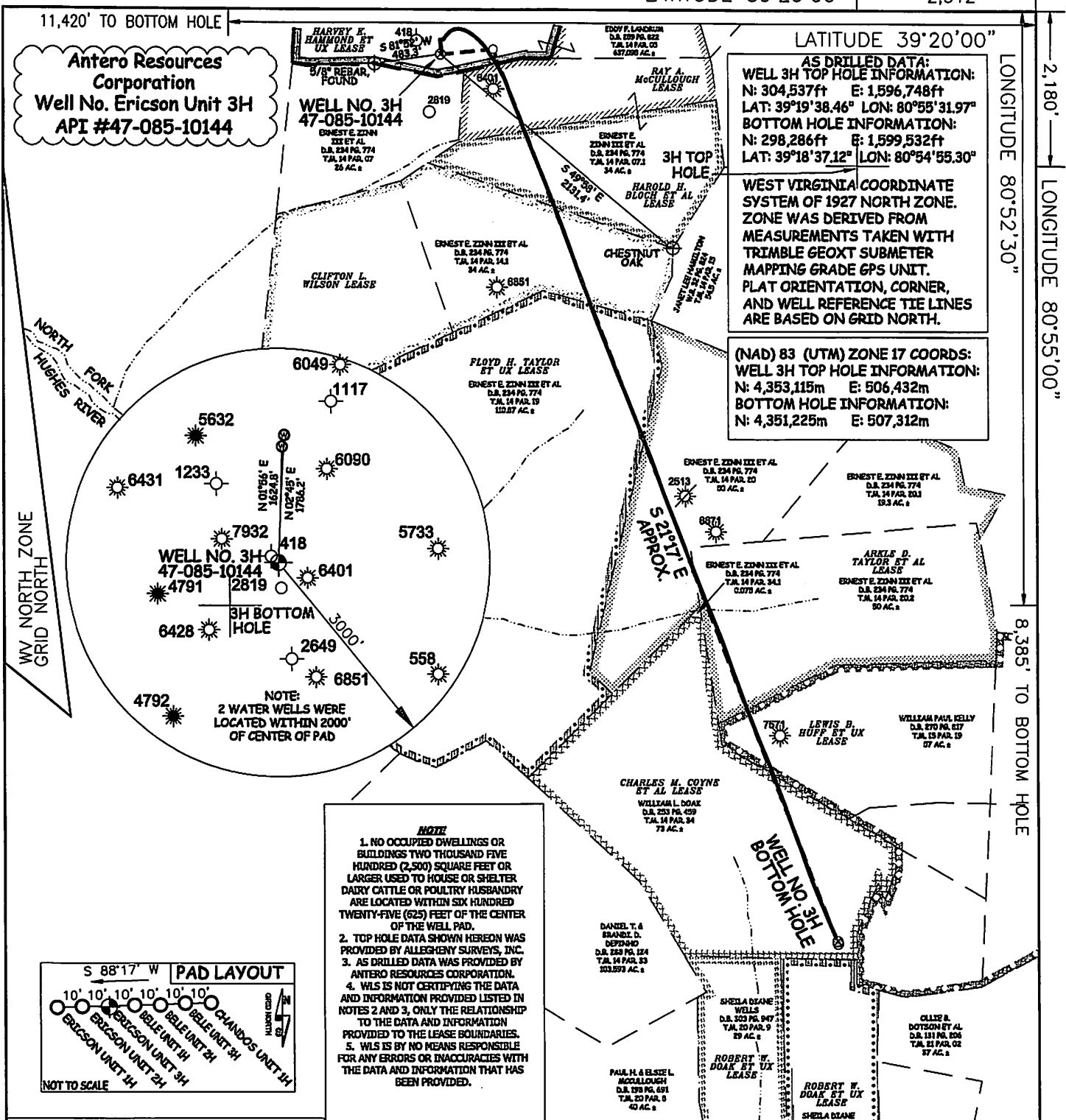
LONGITUDE 80°52'30" LONGITUDE 80°55'00"

8,385' TO BOTTOM HOLE

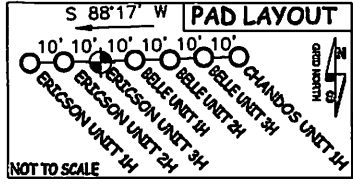
COUNTY NAME PERMIT

Antero Resources Corporation Well No. Ericson Unit 3H API #47-085-10144

AS DRILLED DATA: WELL 3H TOP HOLE INFORMATION: N: 304,537ft E: 1,596,748ft ... WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ... (NAD) 83 (UTM) ZONE 17 COORDS: WELL 3H TOP HOLE INFORMATION: N: 4,353,115m E: 506,432m ...

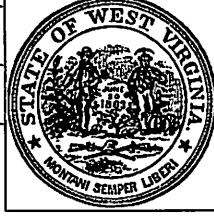


NOTE 1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD. 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC. 3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION. 4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES. 5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



DATE 01/20/16 OPERATOR'S WELL # ERICSON UNIT #3H API WELL # 47 - 085 - 10144 STATE COUNTY PERMIT JOB # 12-129WA DRAWING # ERICSON3HAD SCALE 1" = 1000' MINIMUM DEGREE OF ACCURACY SUBMETER PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND: - - - - - Surface Owner Boundary Lines +/- - - - - - Interior Surface Tracts +/- Found monument, as noted Proposed Well Path As Drilled Well Path



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS WILLLOW LAND SURVEYING PLLC 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X LOCATION: ELEVATION 1,005' ORIGINAL - 1,004' AS-DRILLED WATERSHED NORTH FORK HUGHES RIVER QUADRANGLE PENNSBORO 7.5 DISTRICT CLAY COUNTY RITCHIE SURFACE OWNER EDDY F. LANDRUM ACREAGE 637.095 ACRES +/- OIL & GAS ROYALTY OWNER HARVEY K. RAMMOND ET UX; RAY A. McCULLOUGH; HAROLD H. BLOCH ET AL; LEASE ACREAGE 33 AC +/- 34 AC +/- 34 AC +/- CLIFTON L. WILSON; FLOYD H. TAYLOR ET UX; ARKLE D. TAYLOR ET AL; LEWIS B. HUFF ET UX; CHARLES M. COYNE ET AL 71 AC +/- 150 AC +/- 120 AC +/- 75 AC +/- 73 AC +/- PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,335' TVD 13,152' MD WELL OPERATOR ANTERO RESOURCES CORPORATION DESIGNATED AGENT DIANNA STAMPER ADDRESS 1815 WYNKOOP ST. ADDRESS CT CORPORATION SYSTEM FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

09/16/2016

LATITUDE 39°20'00" 2,512'

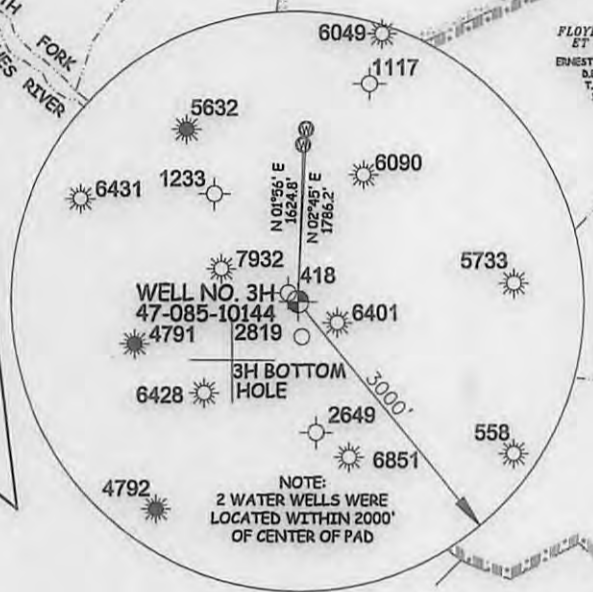
LONGITUDE 80°52'30" 2,180'
LONGITUDE 80°55'00" 8,385' TO BOTTOM HOLE

Antero Resources Corporation
Well No. Ericson Unit 3H
API #47-085-10144

AS DRILLED DATA:
WELL 3H TOP HOLE INFORMATION:
N: 304,537ft E: 1,596,748ft
LAT: 39°19'38.46" LON: 80°55'31.97"
BOTTOM HOLE INFORMATION:
N: 298,286ft E: 1,599,532ft
LAT: 39°18'37.12" LON: 80°54'55.30"

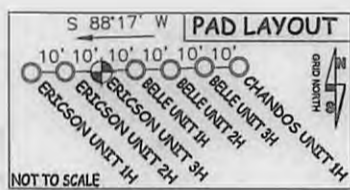
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 3H TOP HOLE INFORMATION:
N: 4,353,115m E: 506,432m
BOTTOM HOLE INFORMATION:
N: 4,351,225m E: 507,312m



NOTE

1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP PROVIDED TO THE LEASE BOUNDARIES.
5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



DATE 01/20/16
OPERATOR'S WELL# ERICSON UNIT #3H
API WELL # 47 - 085 - 10144
STATE COUNTY PERMIT
JOB # 12-129WA
DRAWING # ERICSON3HAD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND

- Surface Owner Boundary Lines +/-
- - - Interior Surface Tracts +/-
- ⊕ Found monument, as noted
- Proposed Well Path
- ⊙ As Drilled Well Path



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
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
LOCATION: ELEVATION 1,005' ORIGINAL - 1,004' AS-DRILLED WATERSHED NORTH FORK HUGHES RIVER
QUADRANGLE PENNSBORO 7.5' DISTRICT CLAY COUNTY RITCHIE
SURFACE OWNER EDDY F. LANDRUM ACREAGE 637.095 ACRES +/-
OIL & GAS ROYALTY OWNER HARVEY K. HAMMOND ET UX; RAY A. McCULLOUGH; HAROLD H. BLOCH ET AL; LEASE ACREAGE 33 AC.±; 34 AC.±; 34 AC.±; CLIFTON L. WILSON; FLOYD H. TAYLOR ET UX; ARKLE D. TAYLOR ET AL; LEWIS B. HUFF ET UX; CHARLES M. COYNE ET AL 71 AC.±; 150 AC.±; 120 AC.±; 75 AC.±; 73 AC.±
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,335' TVD 13,152' MD
WELL OPERATOR ANTERO RESOURCES CORPORATION DESIGNATED AGENT CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

09/16/2016

COUNTY NAME PERMIT