

17-06287



Paterson 347: G: 1332 + NS3° @ 1327 East  
G: 1332.0

**Randall Unit 2H**  
Doddridge County WV  
Northing: 14230768.22  
Easting: 1736321.64  
As Drilled

Received  
SEP 28 2015

Office of Oil and Gas  
Environmental Protection



**WELL DETAILS** Randall Unit 2H  
Ground Level: 1332.0  
Northing: 14230768.22  
Easting: 1736321.64  
Latitude: 39° 11' 18.784 N  
Longitude: 80° 36' 41.494 W

Courtesy Leach  
14-22, January 13 2015  
Scientific Drilling  
421 South Eagle Lane  
Dulahoma City, OK 73125

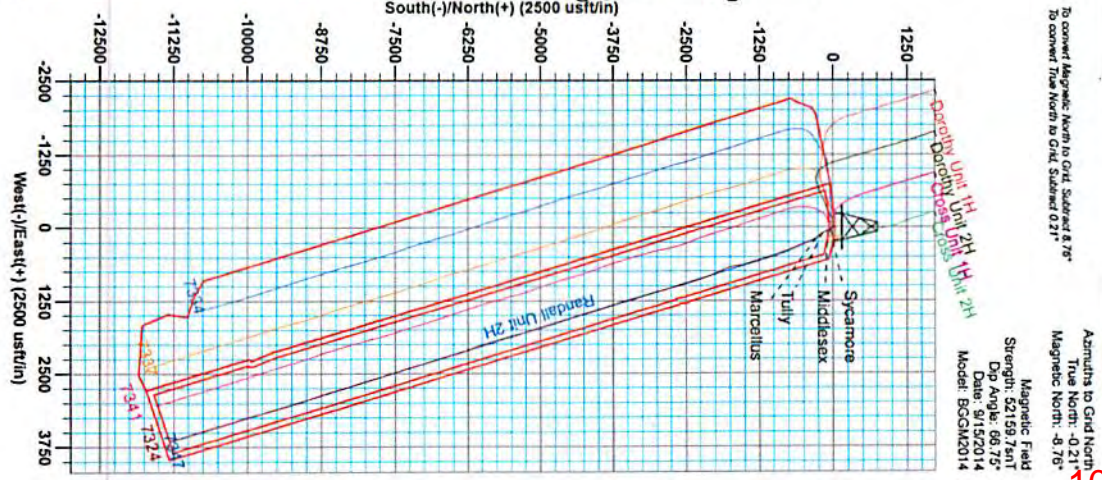
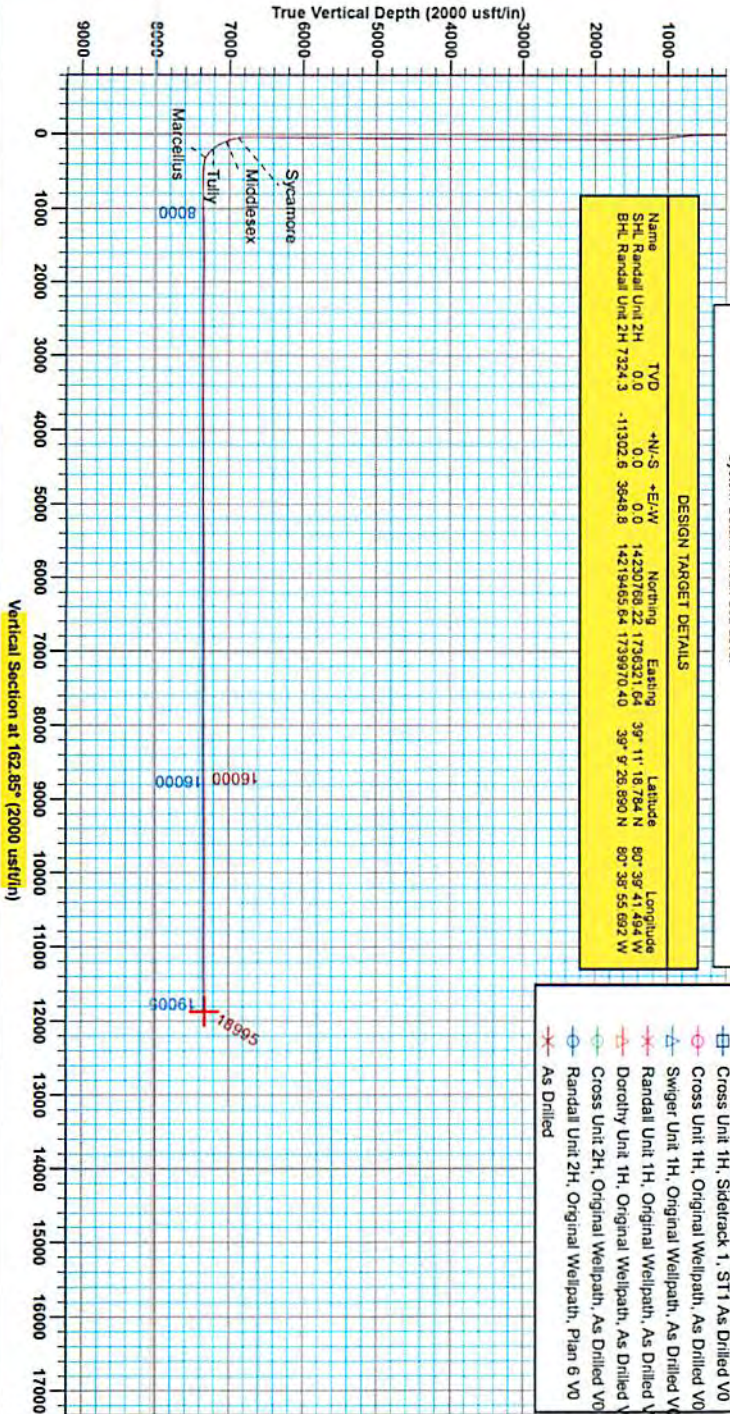
**PROJECT DETAILS:** Doddridge County WV  
Geodetic System: Universal Transverse Mercator (US Survey Feet)  
Datum: NAD 1927 (NADCON CONUS)  
Ellipsoid: Clarke 1866  
Zone: Zone 17N (64 W to 78 W)  
System Datum: Mean Sea Level

**DESIGN TARGET DETAILS**

Name	TVD	-N/-S	+E/+W	Northing	Easting	Latitude	Longitude
SHL Randall Unit 2H	0.0	0.0	0.0	14230768.22	1736321.64	39° 11' 18.784 N	80° 36' 41.494 W
BHL Randall Unit 2H 7324.3	-11302.6	-3548.8		14219485.64	1739970.40	39° 9' 28.890 N	80° 36' 55.692 W

**LEGEND**

- ✱ Dorothy Unit 2H, Original Wellpath, As Drilled V0
- ✱ Swiger Unit 2H, Original Wellpath, As Drilled V0
- ✱ Cross Unit 1H, Sidetrack 1, ST1 As Drilled V0
- ✱ Cross Unit 1H, Original Wellpath, As Drilled V0
- ✱ Swiger Unit 1H, Original Wellpath, As Drilled V0
- ✱ Randall Unit 1H, Original Wellpath, As Drilled V0
- ✱ Dorothy Unit 1H, Original Wellpath, As Drilled V0
- ✱ Cross Unit 2H, Original Wellpath, As Drilled V0
- ✱ Randall Unit 2H, Original Wellpath, Plan 6 V0
- ✱ As Drilled



To convert Magnetic North to Grid, Sidetrack 8.78°  
To convert True North to Grid, Sidetrack 9.21°

Asimuths to Grid North  
True North: -0.21°  
Magnetic North: -8.78°  
Magnetic Field  
Strength: 52159.7nT  
Dip Angle: 66.75°  
Date: 9/15/2014  
Model: BCGM2014

10/30/2015

17-06287



## Antero

Doddridge County WV  
Stewart Pad  
Randall Unit 2H  
Original Wellpath

Design: As Drilled

# EOW Completion Report

13 January, 2015

Received

SEP 28 2015

Office of Oil and Gas  
WV Dept. of Environmental Protection



10/30/2015

<b>Company:</b> Antero	<b>Local Co-ordinate Reference:</b> Well Randall Unit 2H
<b>Project:</b> Doddridge County WV	<b>TVD Reference:</b> Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Site:</b> Stewart Pad	<b>MD Reference:</b> Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Well:</b> Randall Unit 2H	<b>North Reference:</b> Grid
<b>Wellbore:</b> Original Wellpath	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> As Drilled	<b>Database:</b> Oklahoma District

<b>Project</b>	Doddridge County WV, McClellan District		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Zone 17N (84 W to 78 W)		

<b>Site</b>	Stewart Pad				
<b>Site Position:</b>	<b>Northing:</b>	14,230,768.62 usft	<b>Latitude:</b>	39° 11' 18.788 N	
<b>From:</b> Map	<b>Easting:</b>	1,736,331.61 usft	<b>Longitude:</b>	80° 39' 41.367 W	
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.21 °

<b>Well</b>	Randall Unit 2H, Marcellus					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,230,768.22 usft	<b>Latitude:</b>	39° 11' 18.784 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,736,321.64 usft	<b>Longitude:</b>	80° 39' 41.494 W
<b>Position Uncertainty</b>		2.0 usft	<b>Wellhead Elevation:</b>	1,357.0 usft	<b>Ground Level:</b>	1,332.0 usft

<b>Wellbore</b>	Original Wellpath				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2014	9/15/2014	-8.54	66.75	52,160

<b>Design</b>	As Drilled				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	162.85	

Received  
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<b>Survey Program</b>	<b>Date</b>	1/13/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
37.0	2,497.2	Survey #4 Def Int Survey (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
2,557.0	18,995.0	Survey #5 SDI MWD (Original Wellpath)	MWD SDI	MWD - Standard ver 1.0.1	

Office of Oil and Gas  
 WV Dept. of Environmental Protection

<b>Survey</b>									
<b>MD (usft)</b>	<b>Inc (°)</b>	<b>Azi (azimuth) (°)</b>	<b>TVD (usft)</b>	<b>N/S (usft)</b>	<b>E/W (usft)</b>	<b>V. Sec (usft)</b>	<b>DLeg (°/100usft)</b>		
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
37.0	0.10	184.11	37.0	0.0	0.0	0.0	0.00	0.27	
62.0	0.20	184.11	62.0	-0.1	0.0	0.0	0.10	0.40	
87.0	0.30	184.11	87.0	-0.2	0.0	0.0	0.20	0.40	
112.0	0.40	184.11	112.0	-0.4	0.0	0.0	0.30	0.40	
137.0	0.56	182.29	137.0	-0.6	0.0	0.0	0.50	0.64	
162.0	0.63	182.59	162.0	-0.8	0.0	0.0	0.80	0.28	
187.0	0.58	168.46	187.0	-1.1	0.0	0.0	1.00	0.63	
212.0	0.34	204.22	212.0	-1.3	0.0	0.0	1.20	1.45	
237.0	0.33	198.74	237.0	-1.4	-0.1	0.0	1.30	0.13	
262.0	0.31	179.21	262.0	-1.6	-0.1	0.0	1.50	0.44	

<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Randall Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Site:</b>	Stewart Pad	<b>MD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Well:</b>	Randall Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
287.0	0.07	108.72	287.0	-1.6	-0.1	1.5	1.18	
312.0	0.19	154.79	312.0	-1.7	-0.1	1.6	0.60	
337.0	0.21	203.32	337.0	-1.7	-0.1	1.6	0.66	
362.0	0.26	201.22	362.0	-1.8	-0.1	1.7	0.20	
387.0	0.24	149.20	387.0	-1.9	-0.1	1.8	0.88	
412.0	0.34	151.82	412.0	-2.0	0.0	1.9	0.40	
437.0	0.25	130.19	437.0	-2.1	0.0	2.1	0.57	
462.0	0.45	142.93	462.0	-2.3	0.1	2.2	0.85	
487.0	0.91	138.37	487.0	-2.5	0.3	2.5	1.85	
512.0	2.12	134.62	512.0	-3.0	0.8	3.1	4.85	
537.0	2.99	132.82	537.0	-3.7	1.6	4.0	3.49	
562.0	3.20	134.02	561.9	-4.7	2.6	5.2	0.88	
587.0	3.68	134.73	586.9	-5.7	3.7	6.5	1.93	
612.0	4.20	134.56	611.8	-6.9	4.9	8.0	2.08	
637.0	4.35	133.09	636.7	-8.2	6.2	9.7	0.74	
662.0	5.66	125.83	661.7	-9.6	7.9	11.5	5.81	
687.0	6.10	123.46	686.5	-11.0	10.0	13.5	2.01	
712.0	6.77	123.83	711.4	-12.6	12.4	15.7	2.69	
737.0	7.44	123.92	736.2	-14.3	14.9	18.1	2.68	
762.0	7.62	123.63	761.0	-16.1	17.6	20.6	0.74	
787.0	7.68	123.48	785.7	-18.0	20.4	23.2	0.25	
812.0	7.74	123.74	810.5	-19.8	23.2	25.8	0.28	
837.0	7.53	127.41	835.3	-21.8	25.9	28.4	2.12	
862.0	7.29	131.22	860.1	-23.8	28.4	31.1	2.19	
887.0	7.22	133.01	884.9	-25.9	30.7	33.8	0.95	
912.0	7.03	135.34	909.7	-28.1	33.0	36.5	1.38	
937.0	6.34	140.89	934.5	-30.2	34.9	39.2	3.78	
962.0	5.70	143.78	959.4	-32.3	36.5	41.6	2.83	
987.0	4.98	143.83	984.3	-34.2	37.9	43.8	2.88	
1,012.0	4.78	143.44	1,009.2	-35.9	39.2	45.8	0.81	
1,037.0	4.36	143.05	1,034.1	-37.5	40.3	47.7	1.68	
1,062.0	4.12	143.89	1,059.0	-39.0	41.5	49.5	0.99	
1,087.0	3.80	142.83	1,084.0	-40.4	42.5	51.1	1.31	
1,112.0	3.43	143.46	1,108.9	-41.6	43.4	52.6	1.49	
1,137.0	3.18	143.31	1,133.9	-42.8	44.3	53.9	1.00	
1,162.0	2.98	143.31	1,158.8	-43.9	45.1	55.2	0.80	
1,187.0	2.78	144.88	1,183.8	-44.9	45.8	56.4	0.86	
1,212.0	2.39	147.54	1,208.8	-45.8	46.5	57.5	1.63	
1,237.0	2.32	147.16	1,233.8	-46.7	47.0	58.5	0.29	
1,262.0	2.01	147.35	1,258.7	-47.5	47.5	59.4	1.24	
1,287.0	1.62	145.04	1,283.7	-48.1	48.0	60.1	1.59	
1,312.0	1.38	147.48	1,308.7	-48.7	48.3	60.8	0.99	
1,337.0	1.37	144.34	1,333.7	-49.2	48.7	61.3	0.30	
1,362.0	1.30	146.10	1,358.7	-49.6	49.0	61.9	0.32	



17-06287

EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Randall Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Site:</b>	Stewart Pad	<b>MD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Well:</b>	Randall Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,387.0	1.13	140.75	1,383.7	-50.1	49.3	62.4	0.82
1,412.0	1.07	144.25	1,408.7	-50.4	49.6	62.8	0.36
1,437.0	1.16	139.33	1,433.7	-50.8	49.9	63.3	0.53
1,462.0	0.94	143.41	1,458.7	-51.2	50.2	63.7	0.93
1,487.0	0.71	148.19	1,483.7	-51.5	50.4	64.1	0.96
1,512.0	0.64	147.03	1,508.7	-51.7	50.5	64.3	0.29
1,537.0	0.69	152.23	1,533.7	-52.0	50.7	64.6	0.31
1,562.0	0.55	147.06	1,558.7	-52.2	50.8	64.9	0.60
1,587.0	0.43	139.78	1,583.7	-52.4	51.0	65.1	0.54
1,612.0	0.32	131.95	1,608.7	-52.5	51.1	65.2	0.48
1,637.0	0.39	121.44	1,633.7	-52.6	51.2	65.4	0.38
1,662.0	0.53	139.67	1,658.7	-52.7	51.3	65.5	0.80
1,687.0	0.34	135.65	1,683.7	-52.9	51.5	65.7	0.77
1,712.0	0.32	142.43	1,708.7	-53.0	51.6	65.8	0.18
1,737.0	0.19	152.38	1,733.7	-53.1	51.6	65.9	0.55
1,762.0	0.10	130.45	1,758.7	-53.1	51.7	66.0	0.42
1,787.0	0.08	92.52	1,783.7	-53.1	51.7	66.0	0.25
1,812.0	0.15	114.51	1,808.7	-53.2	51.7	66.0	0.33
1,837.0	0.14	125.07	1,833.7	-53.2	51.8	66.1	0.11
1,862.0	0.08	170.08	1,858.7	-53.2	51.8	66.1	0.40
1,887.0	0.16	118.21	1,883.7	-53.3	51.9	66.2	0.51
1,912.0	0.25	119.47	1,908.7	-53.3	51.9	66.2	0.36
1,937.0	0.17	114.52	1,933.7	-53.3	52.0	66.3	0.33
1,962.0	0.16	134.16	1,958.7	-53.4	52.1	66.4	0.23
1,987.0	0.19	181.61	1,983.7	-53.4	52.1	66.4	0.57
2,012.0	0.13	140.50	2,008.7	-53.5	52.1	66.5	0.50
2,037.0	0.15	195.73	2,033.7	-53.6	52.1	66.5	0.52
2,062.0	0.01	121.33	2,058.7	-53.6	52.1	66.6	0.59
2,087.0	0.08	66.56	2,083.7	-53.6	52.1	66.6	0.30
2,112.0	0.18	91.09	2,108.7	-53.6	52.2	66.6	0.45
2,137.0	0.21	112.18	2,133.7	-53.6	52.3	66.6	0.31
2,162.0	0.22	89.56	2,158.7	-53.6	52.4	66.7	0.34
2,187.0	0.23	114.65	2,183.7	-53.6	52.5	66.7	0.39
2,212.0	0.29	136.03	2,208.7	-53.7	52.5	66.8	0.45
2,237.0	0.16	178.76	2,233.7	-53.8	52.6	66.9	0.82
2,262.0	0.29	131.00	2,258.7	-53.9	52.6	67.0	0.87
2,287.0	0.07	124.12	2,283.7	-53.9	52.7	67.1	0.88
2,312.0	0.14	94.39	2,308.7	-53.9	52.7	67.1	0.35
2,337.0	0.31	103.51	2,333.7	-53.9	52.8	67.1	0.69
2,362.0	0.31	63.10	2,358.7	-53.9	53.0	67.1	0.86
2,387.0	0.30	99.47	2,383.7	-53.9	53.1	67.2	0.76
2,412.0	0.21	109.06	2,408.7	-53.9	53.2	67.2	0.40
2,437.0	0.17	167.57	2,433.7	-54.0	53.2	67.3	0.76
2,462.0	0.14	118.92	2,458.7	-54.0	53.3	67.3	0.52
2,487.0	0.17	129.62	2,483.7	-54.1	53.3	67.4	0.17

<b>Company:</b> Antero	<b>Local Co-ordinate Reference:</b> Well Randall Unit 2H
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<b>Site:</b> Stewart Pad	<b>MD Reference:</b> Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Well:</b> Randall Unit 2H	<b>North Reference:</b> Grid
<b>Wellbore:</b> Original Wellpath	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> As Drilled	<b>Database:</b> Oklahoma District

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,497.2	0.15	98.63	2,493.9	-54.1	53.4	67.4	0.86
2,557.0	0.34	67.27	2,553.7	-54.0	53.6	67.4	0.38
2,651.0	0.36	78.48	2,647.7	-53.9	54.2	67.4	0.08
2,745.0	0.46	316.41	2,741.7	-53.5	54.2	67.1	0.76
2,839.0	0.69	320.80	2,835.7	-52.8	53.6	66.3	0.25
2,933.0	0.62	10.94	2,929.7	-51.9	53.3	65.3	0.59
3,028.0	0.11	61.98	3,024.7	-51.3	53.5	64.8	0.59
3,122.0	0.45	309.93	3,118.7	-51.0	53.3	64.5	0.53
3,216.0	0.32	252.50	3,212.7	-50.9	52.7	64.2	0.41
3,310.0	0.46	44.95	3,306.7	-50.7	52.8	64.0	0.81
3,404.0	0.50	354.84	3,400.7	-50.0	53.0	63.4	0.43
3,498.0	0.25	197.14	3,494.6	-49.8	52.9	63.2	0.78
3,593.0	0.41	281.83	3,589.6	-49.9	52.5	63.2	0.48
3,687.0	0.37	341.73	3,683.6	-49.6	52.1	62.7	0.42
3,781.0	0.60	86.87	3,777.6	-49.3	52.5	62.6	0.83
3,875.0	0.66	35.96	3,871.6	-48.8	53.3	62.3	0.58
3,969.0	0.21	263.36	3,965.6	-48.4	53.4	62.0	0.87
4,063.0	0.73	73.36	4,059.6	-48.2	53.8	62.0	1.00
4,158.0	0.62	75.45	4,154.6	-47.9	54.9	62.0	0.12
4,252.0	0.34	310.03	4,248.6	-47.6	55.2	61.8	0.92
4,346.0	0.78	350.52	4,342.6	-46.8	54.9	60.9	0.60
4,440.0	0.44	279.34	4,436.6	-46.1	54.4	60.1	0.81
4,534.0	0.53	247.80	4,530.6	-46.2	53.6	60.0	0.30
4,628.0	0.63	321.70	4,624.6	-46.0	52.9	59.6	0.75
4,722.0	0.60	347.28	4,718.6	-45.1	52.5	58.6	0.29
4,816.0	0.49	316.65	4,812.6	-44.3	52.1	57.7	0.33
4,911.0	0.27	272.88	4,907.6	-44.0	51.6	57.3	0.37
5,005.0	0.53	317.85	5,001.6	-43.7	51.1	56.8	0.41
5,099.0	0.53	3.08	5,095.6	-42.9	50.8	56.0	0.43
5,193.0	0.53	38.81	5,189.6	-42.2	51.1	55.4	0.35
5,287.0	0.66	21.60	5,283.6	-41.3	51.6	54.7	0.23
5,381.0	0.62	31.24	5,377.6	-40.4	52.1	53.9	0.12
5,475.0	0.53	346.59	5,471.6	-39.5	52.2	53.2	0.47
5,570.0	0.79	349.58	5,566.6	-38.5	52.0	52.1	0.28
5,664.0	0.26	21.04	5,660.6	-37.6	52.0	51.3	0.62
5,758.0	0.77	332.52	5,754.6	-36.9	51.7	50.5	0.67
5,852.0	0.71	328.37	5,848.6	-35.8	51.1	49.3	0.09
5,946.0	0.14	35.19	5,942.6	-35.2	50.9	48.7	0.71
6,040.0	0.70	22.80	6,036.5	-34.6	51.2	48.1	0.60
6,134.0	0.79	26.76	6,130.5	-33.5	51.7	47.2	0.11
6,228.0	0.70	60.15	6,224.5	-32.6	52.5	46.6	0.46
6,322.0	0.58	15.24	6,318.5	-31.9	53.1	46.1	0.53
6,416.0	0.09	78.70	6,412.5	-31.4	53.3	45.7	0.58
6,510.0	0.51	359.35	6,506.5	-31.0	53.4	45.3	0.53

<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Randall Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Site:</b>	Stewart Pad	<b>MD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Well:</b>	Randall Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey								
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	
6,604.0	0.11	244.19	6,600.5	-30.6	53.3	44.9	0.60	
6,699.0	0.44	35.51	6,695.5	-30.3	53.4	44.7	0.57	
6,742.0	0.19	166.65	6,738.5	-30.3	53.5	44.7	1.36	
6,793.0	0.59	182.92	6,789.5	-30.6	53.5	45.0	0.81	
6,823.0	3.90	195.16	6,819.5	-31.7	53.3	46.0	11.09	
6,853.0	7.92	198.29	6,849.3	-34.7	52.4	48.6	13.44	
6,880.0	11.47	196.03	6,875.9	-39.0	51.0	52.4	13.22	
6,881.0	11.56	195.86	6,876.9	-39.2	51.0	52.5	9.47	
<b>Sycamore</b>								
6,910.0	14.16	191.88	6,905.2	-45.5	49.5	58.1	9.47	
6,940.0	15.46	184.45	6,934.2	-53.1	48.4	65.0	7.66	
6,970.0	16.86	177.21	6,963.0	-61.4	48.3	72.9	8.17	
7,000.0	18.13	169.74	6,991.6	-70.4	49.3	81.8	8.59	
7,030.0	19.72	161.91	7,020.0	-79.8	51.7	91.5	9.98	
7,054.0	21.38	158.51	7,042.5	-87.7	54.6	99.9	8.53	
<b>Middlesex</b>								
7,060.0	21.81	157.74	7,048.1	-89.7	55.4	102.1	8.53	
7,075.0	22.98	156.46	7,061.9	-95.0	57.6	107.8	8.45	
7,090.0	24.33	154.39	7,075.7	-100.5	60.2	113.7	10.57	
7,105.0	25.45	152.54	7,089.3	-106.1	63.0	120.0	9.09	
7,120.0	26.73	150.90	7,102.7	-111.9	66.1	126.4	9.79	
7,135.0	27.96	150.26	7,116.1	-117.9	69.5	133.2	8.43	
7,150.0	29.17	148.64	7,129.2	-124.1	73.1	140.1	9.58	
7,165.0	30.61	149.04	7,142.2	-130.5	77.0	147.4	9.69	
7,180.0	31.77	148.08	7,155.1	-137.1	81.1	154.9	8.41	
7,210.0	34.52	146.88	7,180.2	-150.9	89.9	170.7	9.42	
7,240.0	37.94	146.04	7,204.4	-165.7	99.7	187.7	11.52	
7,261.0	40.68	145.38	7,220.6	-176.7	107.2	200.5	13.18	
<b>Tully</b>								
7,270.0	41.85	145.12	7,227.4	-181.6	110.6	206.1	13.18	
7,285.0	43.88	144.58	7,238.4	-189.9	116.4	215.8	13.75	
7,300.0	45.98	143.61	7,249.0	-198.5	122.6	225.8	14.73	
7,315.0	47.80	143.18	7,259.3	-207.3	129.2	236.2	12.31	
7,327.0	48.80	143.00	7,267.3	-214.5	134.6	244.6	8.41	
7,357.0	52.56	142.65	7,286.3	-232.9	148.6	266.4	12.57	
7,382.0	57.02	142.29	7,300.7	-249.1	161.0	285.5	17.88	
7,412.0	62.96	143.80	7,315.7	-269.9	176.6	310.0	20.27	
7,425.0	65.54	145.01	7,321.3	-279.4	183.4	321.1	21.56	
<b>Marcellus</b>								
7,442.0	68.93	146.53	7,327.9	-292.4	192.2	336.1	21.56	
7,475.0	75.80	149.68	7,337.9	-319.1	208.8	366.5	22.72	
7,511.0	83.66	154.12	7,344.3	-350.3	225.5	401.2	24.97	
7,541.0	86.65	157.42	7,346.8	-377.5	237.7	430.9	14.81	
7,571.0	86.65	158.89	7,348.6	-405.3	248.9	460.7	4.89	
7,601.0	86.41	158.57	7,350.4	-433.2	259.8	490.6	1.33	



17-06287

EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Randall Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Site:</b>	Stewart Pad	<b>MD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Well:</b>	Randall Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

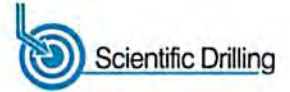
Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,631.0	86.00	158.77	7,352.4	-461.1	270.6	520.4	1.52
7,661.0	87.96	158.76	7,354.0	-489.1	281.5	550.3	6.53
7,691.0	89.16	158.87	7,354.7	-517.0	292.3	580.2	4.02
7,721.0	88.99	158.77	7,355.2	-545.0	303.2	610.2	0.66
7,751.0	89.78	159.03	7,355.5	-573.0	314.0	640.1	2.77
7,781.0	90.77	158.20	7,355.4	-600.9	324.9	670.0	4.31
7,811.0	90.57	157.38	7,355.0	-628.7	336.2	699.9	2.81
7,879.0	91.65	156.90	7,353.7	-691.3	362.7	767.5	1.74
7,973.0	91.71	158.67	7,351.0	-778.3	398.2	861.1	1.88
8,067.0	90.60	162.23	7,349.1	-866.9	429.6	955.0	3.97
8,161.0	89.56	160.47	7,348.9	-955.9	459.7	1,049.0	2.17
8,255.0	91.01	162.29	7,348.5	-1,045.0	489.7	1,142.9	2.48
8,349.0	91.14	162.50	7,346.7	-1,134.6	518.1	1,236.9	0.26
8,443.0	90.57	162.09	7,345.3	-1,224.1	546.7	1,330.9	0.75
8,538.0	90.27	162.36	7,344.6	-1,314.6	575.7	1,425.9	0.42
8,632.0	92.19	163.70	7,342.6	-1,404.4	603.1	1,519.8	2.49
8,726.0	90.07	163.18	7,340.7	-1,494.5	629.9	1,613.8	2.32
8,820.0	90.04	171.69	7,340.6	-1,586.2	650.3	1,707.4	9.05
8,914.0	90.37	170.68	7,340.3	-1,679.1	664.8	1,800.4	1.13
9,008.0	88.32	162.54	7,341.4	-1,770.4	686.5	1,894.1	8.93
9,102.0	86.71	154.20	7,345.5	-1,857.7	721.1	1,987.7	9.03
9,196.0	90.47	156.00	7,347.8	-1,942.9	760.6	2,080.8	4.43
9,290.0	89.43	155.82	7,347.9	-2,028.7	799.0	2,174.1	1.12
9,384.0	88.26	158.98	7,349.8	-2,115.4	835.1	2,267.6	3.58
9,479.0	89.56	159.86	7,351.6	-2,204.4	868.5	2,362.4	1.65
9,573.0	90.77	161.84	7,351.3	-2,293.1	899.3	2,456.4	2.47
9,667.0	90.97	161.63	7,349.9	-2,382.4	928.8	2,550.3	0.31
9,761.0	89.87	164.49	7,349.2	-2,472.3	956.2	2,644.3	3.26
9,855.0	88.76	164.68	7,350.3	-2,562.9	981.2	2,738.3	1.20
9,949.0	90.34	164.33	7,351.0	-2,653.5	1,006.3	2,832.2	1.72
10,043.0	89.90	164.80	7,350.8	-2,744.1	1,031.3	2,926.2	0.68
10,137.0	89.19	165.46	7,351.6	-2,835.0	1,055.4	3,020.1	1.03
10,232.0	90.67	164.25	7,351.7	-2,926.6	1,080.2	3,115.0	2.01
10,326.0	90.37	164.89	7,350.9	-3,017.3	1,105.2	3,209.0	0.75
10,420.0	89.53	164.08	7,350.9	-3,107.8	1,130.4	3,303.0	1.24
10,514.0	90.00	161.23	7,351.3	-3,197.5	1,158.4	3,397.0	3.07
10,608.0	90.10	163.99	7,351.2	-3,287.2	1,186.5	3,490.9	2.94
10,703.0	90.84	165.03	7,350.5	-3,378.8	1,211.9	3,585.9	1.34
10,797.0	90.34	164.24	7,349.5	-3,469.4	1,236.8	3,679.8	0.99
10,891.0	90.00	163.21	7,349.2	-3,559.6	1,263.1	3,773.8	1.15
10,985.0	89.76	162.12	7,349.4	-3,649.4	1,291.1	3,867.8	1.19
11,079.0	90.97	161.81	7,348.8	-3,738.8	1,320.2	3,961.8	1.33
11,173.0	89.73	162.58	7,348.2	-3,828.2	1,349.0	4,055.8	1.55
11,268.0	89.26	161.97	7,349.1	-3,918.7	1,377.9	4,150.8	0.81
11,362.0	90.17	163.70	7,349.5	-4,008.5	1,405.6	4,244.8	2.08





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EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Randall Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Site:</b>	Stewart Pad	<b>MD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Well:</b>	Randall Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,456.0	90.97	162.30	7,348.6	-4,098.4	1,433.1	4,338.8	1.72
11,550.0	90.40	162.70	7,347.5	-4,188.1	1,461.4	4,432.8	0.74
11,645.0	89.33	163.47	7,347.7	-4,279.0	1,489.0	4,527.8	1.39
11,739.0	90.67	163.13	7,347.7	-4,369.0	1,516.0	4,621.8	1.47
11,833.0	90.07	161.84	7,347.1	-4,458.6	1,544.3	4,715.8	1.51
11,927.0	91.18	162.36	7,346.1	-4,548.1	1,573.2	4,809.7	1.30
12,021.0	90.87	163.91	7,344.4	-4,638.0	1,600.5	4,903.7	1.68
12,115.0	90.20	162.16	7,343.5	-4,727.9	1,627.9	4,997.7	1.99
12,210.0	90.27	160.28	7,343.1	-4,817.9	1,658.5	5,092.7	1.98
12,304.0	91.48	161.06	7,341.7	-4,906.5	1,689.6	5,186.6	1.53
12,398.0	91.71	163.52	7,339.1	-4,996.0	1,718.2	5,280.5	2.63
12,488.0	90.00	164.08	7,337.7	-5,082.5	1,743.3	5,370.5	2.00
12,579.0	91.31	164.85	7,336.7	-5,170.1	1,767.6	5,461.5	1.67
12,670.0	88.99	163.26	7,336.4	-5,257.6	1,792.6	5,552.4	3.09
12,763.0	90.47	163.52	7,336.9	-5,346.7	1,819.2	5,645.4	1.62
12,856.0	90.30	164.09	7,336.3	-5,436.0	1,845.2	5,738.4	0.64
12,948.0	89.63	165.13	7,336.3	-5,524.7	1,869.6	5,830.4	1.34
13,041.0	90.23	164.02	7,336.4	-5,614.4	1,894.3	5,923.3	1.36
13,133.0	89.09	161.95	7,337.0	-5,702.3	1,921.2	6,015.3	2.57
13,225.0	89.76	162.64	7,337.9	-5,790.0	1,949.2	6,107.3	1.05
13,317.0	91.31	162.90	7,337.0	-5,877.9	1,976.5	6,199.3	1.71
13,408.0	91.51	162.50	7,334.8	-5,964.7	2,003.5	6,290.3	0.49
13,501.0	91.31	162.48	7,332.5	-6,053.4	2,031.5	6,383.2	0.22
13,595.0	88.86	157.86	7,332.4	-6,141.8	2,063.4	6,477.1	5.56
13,689.0	90.40	160.37	7,333.0	-6,229.6	2,096.9	6,570.9	3.13
13,783.0	90.13	161.52	7,332.5	-6,318.4	2,127.5	6,664.8	1.26
13,877.0	89.87	162.14	7,332.5	-6,407.7	2,156.9	6,758.8	0.72
13,971.0	90.70	164.10	7,332.1	-6,497.7	2,184.2	6,852.8	2.26
14,065.0	90.81	164.58	7,330.8	-6,588.2	2,209.5	6,946.8	0.52
14,159.0	90.34	163.85	7,329.9	-6,678.6	2,235.1	7,040.7	0.92
14,253.0	89.90	161.94	7,329.7	-6,768.5	2,262.7	7,134.7	2.09
14,348.0	89.50	160.86	7,330.2	-6,858.5	2,293.0	7,229.7	1.21
14,442.0	89.23	163.27	7,331.2	-6,947.9	2,322.0	7,323.7	2.58
14,536.0	89.26	163.76	7,332.5	-7,038.1	2,348.7	7,417.7	0.52
14,630.0	88.96	164.16	7,333.9	-7,128.4	2,374.6	7,511.6	0.53
14,724.0	89.60	163.80	7,335.1	-7,218.7	2,400.6	7,605.6	0.78
14,818.0	89.63	163.34	7,335.8	-7,308.9	2,427.1	7,699.6	0.49
14,913.0	89.53	164.13	7,336.4	-7,400.1	2,453.8	7,794.6	0.84
15,007.0	90.30	162.43	7,336.6	-7,490.1	2,480.8	7,888.6	1.99
15,101.0	90.54	161.71	7,335.9	-7,579.5	2,509.7	7,982.6	0.81
15,195.0	90.30	162.26	7,335.2	-7,668.9	2,538.8	8,076.6	0.64
15,289.0	90.87	162.38	7,334.3	-7,758.5	2,567.4	8,170.6	0.62
15,383.0	90.54	162.56	7,333.1	-7,848.1	2,595.7	8,264.5	0.40
15,477.0	90.94	162.84	7,331.9	-7,937.8	2,623.6	8,358.5	0.52



17-06287

EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Randall Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Site:</b>	Stewart Pad	<b>MD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Well:</b>	Randall Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
15,571.0	90.54	163.19	7,330.7	-8,027.7	2,651.1	8,452.5	0.57
15,665.0	90.17	163.43	7,330.1	-8,117.8	2,678.1	8,546.5	0.47
15,759.0	91.24	163.10	7,328.9	-8,207.8	2,705.1	8,640.5	1.19
15,853.0	90.81	163.28	7,327.2	-8,297.8	2,732.3	8,734.5	0.50
15,947.0	90.67	164.16	7,326.0	-8,388.0	2,758.7	8,828.5	0.95
16,042.0	90.60	164.31	7,325.0	-8,479.4	2,784.5	8,923.4	0.17
16,136.0	90.10	163.12	7,324.4	-8,569.6	2,810.8	9,017.4	1.37
16,230.0	89.40	161.15	7,324.8	-8,659.1	2,839.7	9,111.4	2.22
16,324.0	90.07	162.42	7,325.2	-8,748.4	2,869.0	9,205.4	1.53
16,418.0	90.47	162.36	7,324.8	-8,838.0	2,897.5	9,299.4	0.43
16,513.0	89.70	159.84	7,324.7	-8,927.8	2,928.2	9,394.3	2.77
16,607.0	90.13	161.17	7,324.8	-9,016.4	2,959.6	9,488.3	1.49
16,701.0	89.90	162.30	7,324.8	-9,105.7	2,989.1	9,582.2	1.23
16,795.0	89.50	161.46	7,325.3	-9,195.0	3,018.3	9,676.2	0.99
16,890.0	90.17	164.18	7,325.5	-9,285.8	3,046.4	9,771.2	2.95
16,984.0	90.40	164.05	7,325.1	-9,376.2	3,072.1	9,865.2	0.28
17,078.0	90.40	163.77	7,324.4	-9,466.5	3,098.1	9,959.2	0.30
17,172.0	90.60	164.03	7,323.6	-9,556.8	3,124.2	10,053.1	0.35
17,266.0	90.17	163.70	7,323.0	-9,647.1	3,150.3	10,147.1	0.58
17,361.0	89.56	163.41	7,323.2	-9,738.2	3,177.2	10,242.1	0.71
17,455.0	90.40	163.40	7,323.2	-9,828.3	3,204.1	10,336.1	0.89
17,549.0	88.76	163.20	7,323.9	-9,918.3	3,231.1	10,430.1	1.76
17,643.0	88.79	163.20	7,325.9	-10,008.3	3,258.3	10,524.1	0.03
17,738.0	89.09	163.20	7,327.7	-10,099.2	3,285.7	10,619.1	0.32
17,832.0	89.96	162.81	7,328.5	-10,189.1	3,313.2	10,713.1	1.01
17,926.0	90.31	163.08	7,328.2	-10,279.0	3,340.7	10,807.1	0.47
18,020.0	90.20	162.69	7,327.8	-10,368.8	3,368.4	10,901.1	0.43
18,114.0	90.13	162.77	7,327.6	-10,458.6	3,396.3	10,995.1	0.11
18,208.0	90.17	162.39	7,327.3	-10,548.3	3,424.5	11,089.1	0.41
18,302.0	90.22	163.34	7,327.0	-10,638.1	3,452.2	11,183.1	1.01
18,396.0	91.08	163.88	7,325.9	-10,728.3	3,478.7	11,277.0	1.08
18,490.0	91.04	163.13	7,324.2	-10,818.4	3,505.4	11,371.0	0.80
18,584.0	91.28	163.18	7,322.3	-10,908.4	3,532.6	11,465.0	0.26
18,678.0	89.43	163.39	7,321.7	-10,998.4	3,559.6	11,559.0	1.98
18,866.0	89.43	163.66	7,323.6	-11,178.6	3,612.9	11,747.0	0.14
18,936.0	89.78	163.96	7,324.0	-11,245.9	3,632.5	11,817.0	0.66
18,995.0	89.78	163.96	7,324.3	-11,302.6	3,648.8	11,875.9	0.00



17-06287

### EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Randall Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Site:</b>	Stewart Pad	<b>MD Reference:</b>	Patterson 347: GL 1332' + KB 25' @ 1357.0usft
<b>Well:</b>	Randall Unit 2H	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Wellpath	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,881.0	6,876.9	-39.2	51.0	Sycamore
7,054.0	7,042.5	-87.7	54.6	Middlesex
7,261.0	7,220.6	-176.7	107.2	Tully
7,425.0	7,321.3	-279.4	183.4	Marcellus

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_