



**Musgrave Unit 2H  
Ritchie County WV  
Northing: 14275912.95  
Easting: 1640938.28  
As Drilled**



To convert Magnetic North to Grid, Subtract 8.35°  
To convert True North to Grid, Subtract 0.00°

Azimuths to Grid North  
True North: 0.00°  
Magnetic North: -8.35°  
Magnetic Field  
Strength: 52178.5nT  
Dip Angle: 66.84°  
Date: 5/17/2015  
Model: BGGM2014

Patterson 347: GL 1120' + KB 25' @ 1145.0usft  
Gr: 1120.0

		WELL DETAILS Musgrave Unit 2H			
		Ground Level: 1120.0			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14275912.95	1640938.28	18° 46.934' N	80° 59' 53.361' W

Genie Lightfoot  
11:15, June 08 2015  
  
Scientific Drilling  
11220 NW 10th Street  
Yukon OK 73099

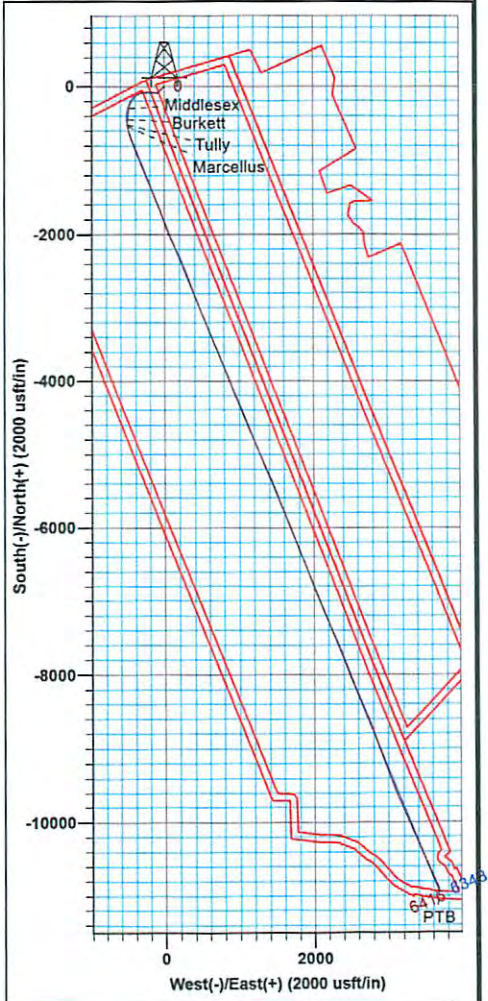
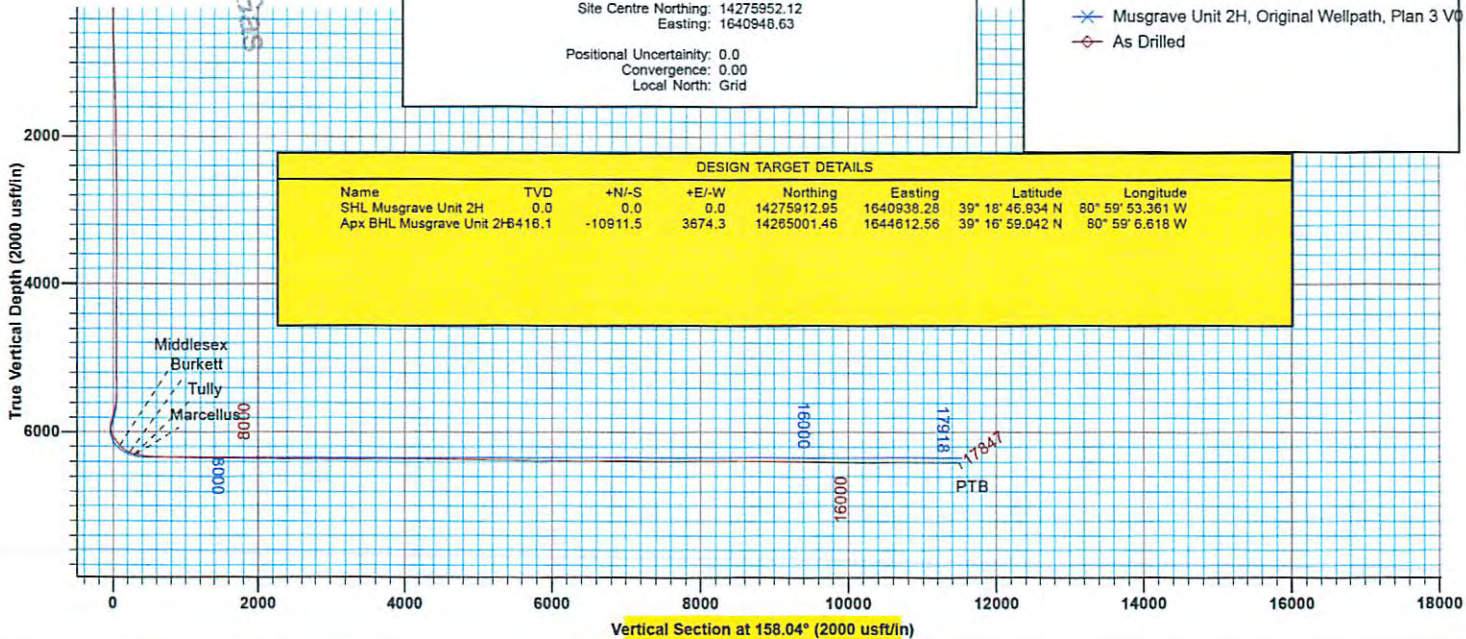
**PROJECT DETAILS:** Ritchie County WV  
  
Geodetic System: Universal Transverse Mercator (US Survey Feet)  
Datum: NAD 1927 (NADCON CONUS)  
Ellipsoid: Clarke 1866  
Zone: Zone 17N (84 W to 78 W)  
System Datum: Mean Sea Level

**SITE DETAILS:** Walnut West Pad: Noland/Musgrave/Schmidle  
  
Site Centre Northing: 14275952.12  
Easting: 1640948.63  
  
Positional Uncertainty: 0.0  
Convergence: 0.00  
Local North: Grid

**LEGEND**  
  
\* Musgrave Unit 2H, Original Wellpath, Plan 3 V  
◇ As Drilled

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DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
SHL Musgrave Unit 2H	0.0	0.0	0.0	14275912.95	1640938.28	39° 18' 46.934' N	80° 59' 53.361' W	
Apx BHL Musgrave Unit 2H	416.1	-10911.5	3674.3	14265001.46	1644612.56	39° 16' 59.042' N	80° 59' 6.616' W	





# Antero

Ritchie County WV  
Walnut West Pad: Noland/Musgrave/Schmidle  
Musgrave Unit 2H  
Original Wellpath

Design: As Drilled

## EOW Completion Report

08 June, 2015

Received  
Office of Oil & Gas  
JAN 13 2016



02/05/2016

<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Musgrave Unit 2H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Site:</b>	Walnut West Pad: Noland/Musgrave/Schmidle	<b>MD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Well:</b>	Musgrave 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>	Ritchie County WV, Ritchie County WV, WV North		
<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>	Walnut West Pad: Noland/Musgrave/Schmidle				
<b>Site Position:</b>	<b>Northing:</b>	14,275,952.12 usft	<b>Latitude:</b>	39° 18' 47.322 N	
<b>From:</b> Map	<b>Easting:</b>	1,640,948.63 usft	<b>Longitude:</b>	80° 59' 53.229 W	
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.00 °

<b>Well</b>	Musgrave Unit 2H, Marcellus					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,275,912.95 usft	<b>Latitude:</b>	39° 18' 46.934 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,640,938.28 usft	<b>Longitude:</b>	80° 59' 53.361 W
<b>Position Uncertainty</b>	2.0 usft	<b>Wellhead Elevation:</b>	1,145.0 usft	<b>Ground Level:</b>	1,120.0 usft	

<b>Wellbore</b>	Original Wellpath			
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	5/17/2015	-8.35	66.84	52,179

<b>Design</b>	As Drilled			
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<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	158.04	

<b>Survey Program</b>	Date 6/8/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
112.0	5,472.4	Survey #6 Def Gyro to KOP (Original Well)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
5,472.4	17,847.0	Survey #7 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
112.0	0.17	93.07	112.0	0.0	0.2	0.1	0.15
137.0	0.21	93.07	137.0	0.0	0.2	0.1	0.16
162.0	0.17	111.40	162.0	0.0	0.3	0.2	0.29
187.0	0.25	88.87	187.0	0.0	0.4	0.2	0.45
212.0	0.13	32.75	212.0	0.0	0.5	0.2	0.83
237.0	0.03	334.14	237.0	0.0	0.5	0.2	0.47
262.0	0.04	321.47	262.0	0.0	0.5	0.2	0.05
287.0	0.11	60.89	287.0	0.0	0.5	0.1	0.49
312.0	0.15	138.88	312.0	0.0	0.6	0.2	0.67
337.0	0.24	174.71	337.0	0.0	0.6	0.3	0.59

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JAN 13 2016



EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Musgrave Unit 2H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Site:</b>	Walnut West Pad: Noland/Musgrave/Schmidle	<b>MD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Well:</b>	Musgrave 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)		
362.0	0.23	175.08	362.0	-0.1	0.6	0.4	0.04		
387.0	0.28	182.90	387.0	-0.3	0.6	0.5	0.24		
412.0	0.22	186.30	412.0	-0.4	0.6	0.6	0.25		
437.0	0.30	216.32	437.0	-0.5	0.5	0.6	0.62		
462.0	0.11	191.02	462.0	-0.5	0.5	0.7	0.82		
487.0	0.13	191.90	487.0	-0.6	0.5	0.7	0.08		
512.0	0.15	166.50	512.0	-0.7	0.5	0.8	0.26		
537.0	0.15	160.44	537.0	-0.7	0.5	0.9	0.06		
562.0	0.26	189.15	562.0	-0.8	0.5	0.9	0.59		
587.0	1.28	208.84	587.0	-1.1	0.4	1.2	4.16		
612.0	1.89	208.81	612.0	-1.7	0.0	1.6	2.44		
637.0	2.99	209.13	637.0	-2.6	-0.5	2.3	4.40		
662.0	3.83	211.09	661.9	-3.9	-1.2	3.2	3.39		
687.0	4.73	217.64	686.8	-5.5	-2.3	4.2	4.09		
712.0	5.49	223.71	711.7	-7.1	-3.8	5.2	3.73		
737.0	5.87	224.75	736.6	-8.9	-5.5	6.2	1.57		
762.0	6.17	225.87	761.5	-10.8	-7.3	7.2	1.29		
787.0	6.44	226.36	786.3	-12.7	-9.3	8.3	1.10		
812.0	6.91	229.12	811.2	-14.6	-11.5	9.3	2.28		
837.0	7.00	229.62	836.0	-16.6	-13.8	10.2	0.43		
862.0	7.03	229.89	860.8	-18.6	-16.1	11.2	0.18		
887.0	7.12	229.69	885.6	-20.5	-18.5	12.1	0.37		
912.0	7.01	229.31	910.4	-22.5	-20.8	13.1	0.48		
937.0	5.98	228.03	935.3	-24.4	-22.9	14.1	4.16		
962.0	5.27	227.84	960.1	-26.0	-24.7	14.9	2.84		
987.0	5.13	227.69	985.0	-27.6	-26.4	15.7	0.56		
1,012.0	5.14	228.21	1,009.9	-29.1	-28.1	16.5	0.19		
1,037.0	5.04	228.41	1,034.8	-30.5	-29.7	17.2	0.41		
1,062.0	4.93	227.84	1,059.7	-32.0	-31.4	17.9	0.48		
1,087.0	4.82	226.68	1,084.6	-33.4	-32.9	18.7	0.59		
1,112.0	4.76	227.06	1,109.6	-34.9	-34.4	19.5	0.27		
1,137.0	4.65	226.67	1,134.5	-36.3	-35.9	20.2	0.46		
1,162.0	4.61	227.42	1,159.4	-37.6	-37.4	20.9	0.29		
1,187.0	4.54	227.75	1,184.3	-39.0	-38.9	21.6	0.30		
1,212.0	4.44	226.82	1,209.2	-40.3	-40.3	22.3	0.49		
1,237.0	4.38	226.92	1,234.2	-41.6	-41.7	23.0	0.24		
1,262.0	4.19	225.64	1,259.1	-42.9	-43.1	23.7	0.85		
1,287.0	4.23	224.06	1,284.0	-44.2	-44.4	24.4	0.49		
1,312.0	4.24	225.32	1,309.0	-45.5	-45.7	25.1	0.37		
1,337.0	4.16	226.29	1,333.9	-46.8	-47.0	25.8	0.43		
1,362.0	4.07	226.11	1,358.8	-48.0	-48.3	26.5	0.36		
1,387.0	4.04	226.14	1,383.8	-49.3	-49.5	27.2	0.12		
1,412.0	3.93	226.67	1,408.7	-50.5	-50.8	27.8	0.46		
1,437.0	3.86	227.17	1,433.6	-51.6	-52.0	28.4	0.31		

Received  
Office of Oil & Gas  
JAN 13 2016



EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Musgrave Unit 2H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Site:</b>	Walnut West Pad: Noland/Musgrave/Schmidle	<b>MD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Well:</b>	Musgrave 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)		
1,462.0	3.71	227.13	1,458.6	-52.8	-53.3	29.0	0.60		
1,487.0	3.68	226.66	1,483.5	-53.9	-54.4	29.6	0.17		
1,512.0	3.71	227.80	1,508.5	-54.9	-55.6	30.2	0.32		
1,537.0	3.60	228.29	1,533.4	-56.0	-56.8	30.7	0.46		
1,562.0	3.46	227.88	1,558.4	-57.0	-57.9	31.2	0.57		
1,587.0	3.25	226.89	1,583.3	-58.0	-59.0	31.7	0.87		
1,612.0	3.12	227.10	1,608.3	-59.0	-60.0	32.2	0.52		
1,637.0	3.09	226.78	1,633.3	-59.9	-61.0	32.7	0.14		
1,662.0	3.07	227.16	1,658.2	-60.8	-62.0	33.2	0.11		
1,687.0	2.88	225.99	1,683.2	-61.7	-63.0	33.7	0.80		
1,712.0	2.75	226.78	1,708.2	-62.6	-63.8	34.1	0.54		
1,737.0	2.63	223.79	1,733.1	-63.4	-64.7	34.6	0.74		
1,762.0	2.50	220.05	1,758.1	-64.2	-65.4	35.1	0.85		
1,787.0	2.53	226.72	1,783.1	-65.0	-66.2	35.5	1.18		
1,812.0	2.38	225.63	1,808.1	-65.8	-66.9	35.9	0.63		
1,837.0	2.35	226.14	1,833.1	-66.5	-67.7	36.3	0.15		
1,862.0	2.26	223.55	1,858.0	-67.2	-68.4	36.7	0.55		
1,887.0	2.18	222.96	1,883.0	-67.9	-69.1	37.1	0.33		
1,912.0	2.12	219.54	1,908.0	-68.6	-69.7	37.6	0.57		
1,937.0	2.15	220.63	1,933.0	-69.3	-70.3	38.0	0.20		
1,962.0	2.16	222.73	1,958.0	-70.0	-70.9	38.4	0.32		
1,987.0	2.06	221.84	1,982.9	-70.7	-71.5	38.8	0.42		
2,012.0	1.98	220.18	2,007.9	-71.4	-72.1	39.2	0.40		
2,037.0	2.05	221.54	2,032.9	-72.0	-72.7	39.6	0.34		
2,062.0	1.94	221.29	2,057.9	-72.7	-73.3	40.0	0.44		
2,087.0	1.86	220.90	2,082.9	-73.3	-73.8	40.4	0.32		
2,112.0	1.77	220.86	2,107.9	-73.9	-74.3	40.7	0.36		
2,137.0	1.76	222.52	2,132.9	-74.5	-74.8	41.1	0.21		
2,162.0	1.68	219.99	2,157.8	-75.0	-75.3	41.4	0.44		
2,187.0	1.67	224.14	2,182.8	-75.6	-75.8	41.7	0.49		
2,212.0	1.72	223.01	2,207.8	-76.1	-76.3	42.0	0.24		
2,237.0	1.66	217.23	2,232.8	-76.7	-76.8	42.4	0.72		
2,262.0	1.71	218.42	2,257.8	-77.3	-77.2	42.8	0.24		
2,287.0	1.73	222.60	2,282.8	-77.8	-77.7	43.1	0.51		
2,312.0	1.57	221.25	2,307.8	-78.4	-78.2	43.4	0.66		
2,337.0	1.60	222.64	2,332.8	-78.9	-78.7	43.7	0.20		
2,362.0	1.55	223.79	2,357.8	-79.4	-79.1	44.0	0.24		
2,387.0	1.57	220.86	2,382.8	-79.9	-79.6	44.3	0.33		
2,412.0	1.29	208.53	2,407.7	-80.4	-80.0	44.6	1.66		
2,437.0	1.64	218.06	2,432.7	-80.9	-80.3	45.0	1.70		
2,462.0	1.77	221.63	2,457.7	-81.5	-80.8	45.4	0.67		
2,487.0	1.85	224.35	2,482.7	-82.1	-81.3	45.7	0.47		
2,512.0	1.38	220.60	2,507.7	-82.6	-81.8	46.0	1.93		
2,537.0	1.39	222.57	2,532.7	-83.0	-82.2	46.3	0.19		
2,562.0	1.32	225.05	2,557.7	-83.5	-82.6	46.5	0.37		

Received  
Office of Oil & Gas  
JAN 28 2016



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Musgrave Unit 2H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Site:</b>	Walnut West Pad: Noland/Musgrave/Schmidle	<b>MD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Well:</b>	Musgrave 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)	
2,587.0	1.30	226.00	2,582.7	-83.9	-83.0	46.7	0.12	
2,612.0	1.21	222.24	2,607.7	-84.2	-83.4	46.9	0.49	
2,637.0	1.13	222.73	2,632.7	-84.6	-83.8	47.2	0.32	
2,662.0	1.08	223.01	2,657.7	-85.0	-84.1	47.4	0.20	
2,687.0	1.06	221.76	2,682.7	-85.3	-84.4	47.6	0.12	
2,712.0	1.11	220.10	2,707.7	-85.7	-84.7	47.8	0.24	
2,737.0	1.20	218.91	2,732.7	-86.1	-85.0	48.0	0.37	
2,762.0	1.16	227.02	2,757.6	-86.4	-85.4	48.2	0.69	
2,787.0	1.12	231.23	2,782.6	-86.8	-85.8	48.4	0.37	
2,812.0	1.06	236.35	2,807.6	-87.1	-86.1	48.5	0.46	
2,837.0	1.02	236.60	2,832.6	-87.3	-86.5	48.6	0.16	
2,862.0	1.01	237.05	2,857.6	-87.5	-86.9	48.7	0.05	
2,887.0	0.90	240.87	2,882.6	-87.8	-87.2	48.8	0.51	
2,912.0	0.87	237.84	2,907.6	-88.0	-87.6	48.8	0.22	
2,937.0	0.89	239.65	2,932.6	-88.2	-87.9	48.9	0.14	
2,962.0	0.84	240.61	2,957.6	-88.3	-88.2	48.9	0.21	
2,987.0	0.83	240.64	2,982.6	-88.5	-88.5	49.0	0.04	
3,012.0	0.78	241.06	3,007.6	-88.7	-88.9	49.0	0.20	
3,037.0	0.77	244.62	3,032.6	-88.8	-89.2	49.1	0.20	
3,062.0	0.69	245.63	3,057.6	-89.0	-89.4	49.1	0.32	
3,087.0	0.67	245.73	3,082.6	-89.1	-89.7	49.1	0.08	
3,112.0	0.66	254.77	3,107.6	-89.2	-90.0	49.1	0.42	
3,137.0	0.57	252.71	3,132.6	-89.3	-90.2	49.1	0.37	
3,162.0	0.59	252.67	3,157.6	-89.4	-90.5	49.0	0.08	
3,187.0	0.50	258.71	3,182.6	-89.4	-90.7	49.0	0.43	
3,212.0	0.48	258.86	3,207.6	-89.5	-90.9	49.0	0.08	
3,237.0	0.40	262.22	3,232.6	-89.5	-91.1	48.9	0.34	
3,262.0	0.32	253.66	3,257.6	-89.5	-91.3	48.9	0.38	
3,287.0	0.31	246.09	3,282.6	-89.6	-91.4	48.9	0.17	
3,312.0	0.27	245.94	3,307.6	-89.6	-91.5	48.9	0.16	
3,337.0	0.23	243.35	3,332.6	-89.7	-91.6	48.9	0.17	
3,362.0	0.24	234.50	3,357.6	-89.7	-91.7	48.9	0.15	
3,387.0	0.41	224.61	3,382.6	-89.8	-91.8	49.0	0.71	
3,412.0	0.42	240.07	3,407.6	-89.9	-91.9	49.0	0.45	
3,437.0	0.41	253.38	3,432.6	-90.0	-92.1	49.0	0.39	
3,462.0	0.38	266.63	3,457.6	-90.0	-92.3	49.0	0.38	
3,487.0	0.24	277.09	3,482.6	-90.0	-92.4	48.9	0.60	
3,512.0	0.18	265.11	3,507.6	-90.0	-92.5	48.9	0.30	
3,537.0	0.17	252.33	3,532.6	-90.0	-92.6	48.9	0.16	
3,562.0	0.19	228.08	3,557.6	-90.1	-92.6	48.9	0.31	
3,587.0	0.21	223.79	3,582.6	-90.1	-92.7	48.9	0.10	
3,612.0	0.25	221.61	3,607.6	-90.2	-92.8	49.0	0.16	
3,637.0	0.33	234.23	3,632.6	-90.3	-92.9	49.0	0.41	
3,662.0	0.32	245.62	3,657.6	-90.4	-93.0	49.0	0.26	

Received  
Office of Oil & Gas  
JAN 1 2016



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Musgrave Unit 2H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Site:</b>	Walnut West Pad: Noland/Musgrave/Schmidle	<b>MD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Well:</b>	Musgrave 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)	
3,687.0	0.34	250.16	3,682.6	-90.4	-93.1	49.0	0.13	
3,712.0	0.40	259.67	3,707.6	-90.5	-93.3	49.0	0.34	
3,737.0	0.34	265.51	3,732.6	-90.5	-93.4	49.0	0.28	
3,762.0	0.29	276.85	3,757.6	-90.5	-93.6	48.9	0.32	
3,787.0	0.30	291.07	3,782.6	-90.4	-93.7	48.8	0.29	
3,812.0	0.35	288.40	3,807.6	-90.4	-93.8	48.7	0.21	
3,837.0	0.32	298.00	3,832.6	-90.3	-94.0	48.6	0.25	
3,862.0	0.28	309.85	3,857.6	-90.3	-94.1	48.5	0.29	
3,887.0	0.24	311.30	3,882.6	-90.2	-94.2	48.4	0.16	
3,912.0	0.23	332.92	3,907.6	-90.1	-94.2	48.3	0.35	
3,937.0	0.21	324.55	3,932.6	-90.0	-94.3	48.2	0.15	
3,962.0	0.27	330.03	3,957.6	-89.9	-94.3	48.1	0.26	
3,987.0	0.24	326.30	3,982.6	-89.8	-94.4	48.0	0.14	
4,012.0	0.22	302.60	4,007.6	-89.8	-94.5	47.9	0.39	
4,037.0	0.23	306.24	4,032.6	-89.7	-94.5	47.9	0.07	
4,062.0	0.26	290.64	4,057.6	-89.7	-94.6	47.8	0.29	
4,087.0	0.27	285.31	4,082.6	-89.6	-94.7	47.7	0.11	
4,112.0	0.24	281.96	4,107.6	-89.6	-94.9	47.6	0.13	
4,137.0	0.19	263.99	4,132.6	-89.6	-94.9	47.6	0.33	
4,162.0	0.22	261.51	4,157.6	-89.6	-95.0	47.6	0.13	
4,187.0	0.16	237.59	4,182.6	-89.6	-95.1	47.6	0.39	
4,212.0	0.17	243.88	4,207.6	-89.7	-95.2	47.6	0.08	
4,237.0	0.18	234.53	4,232.6	-89.7	-95.2	47.6	0.12	
4,262.0	0.16	239.15	4,257.6	-89.8	-95.3	47.6	0.10	
4,287.0	0.16	237.04	4,282.6	-89.8	-95.4	47.6	0.02	
4,312.0	0.14	253.33	4,307.6	-89.8	-95.4	47.6	0.19	
4,337.0	0.18	241.16	4,332.6	-89.8	-95.5	47.6	0.21	
4,362.0	0.14	201.78	4,357.6	-89.9	-95.5	47.6	0.46	
4,387.0	0.08	176.48	4,382.6	-89.9	-95.5	47.7	0.30	
4,412.0	0.06	190.57	4,407.6	-90.0	-95.5	47.7	0.10	
4,437.0	0.08	265.30	4,432.6	-90.0	-95.6	47.7	0.35	
4,462.0	0.07	208.90	4,457.6	-90.0	-95.6	47.7	0.29	
4,487.0	0.13	189.16	4,482.6	-90.0	-95.6	47.8	0.27	
4,512.0	0.09	191.96	4,507.6	-90.1	-95.6	47.8	0.16	
4,537.0	0.12	222.86	4,532.6	-90.1	-95.6	47.8	0.25	
4,562.0	0.14	233.79	4,557.6	-90.2	-95.7	47.8	0.13	
4,587.0	0.14	239.24	4,582.6	-90.2	-95.7	47.9	0.05	
4,612.0	0.15	232.65	4,607.6	-90.2	-95.8	47.9	0.08	
4,637.0	0.16	235.15	4,632.6	-90.3	-95.8	47.9	0.05	
4,662.0	0.18	253.51	4,657.6	-90.3	-95.9	47.9	0.23	
4,687.0	0.24	258.18	4,682.6	-90.3	-96.0	47.9	0.25	
4,712.0	0.26	263.89	4,707.6	-90.3	-96.1	47.9	0.13	
4,737.0	0.23	277.36	4,732.6	-90.3	-96.2	47.8	0.26	
4,762.0	0.19	301.04	4,757.6	-90.3	-96.3	47.8	0.38	

Received  
Office of Oil & Gas  
JAN 19 2016



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Musgrave Unit 2H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Site:</b>	Walnut West Pad: Noland/Musgrave/Schmidle	<b>MD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Well:</b>	Musgrave 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)	
4,787.0	0.17	326.37	4,782.6	-90.3	-96.3	47.7	0.33	
4,812.0	0.14	355.75	4,807.6	-90.2	-96.4	47.6	0.34	
4,837.0	0.13	356.04	4,832.6	-90.1	-96.4	47.6	0.04	
4,862.0	0.12	30.12	4,857.6	-90.1	-96.4	47.5	0.30	
4,887.0	0.11	30.21	4,882.6	-90.0	-96.3	47.5	0.04	
4,912.0	0.04	28.82	4,907.6	-90.0	-96.3	47.5	0.28	
4,937.0	0.14	56.69	4,932.6	-90.0	-96.3	47.5	0.43	
4,962.0	0.06	48.83	4,957.6	-90.0	-96.2	47.4	0.32	
4,987.0	0.12	53.77	4,982.6	-89.9	-96.2	47.4	0.24	
5,012.0	0.10	35.59	5,007.6	-89.9	-96.2	47.4	0.16	
5,037.0	0.10	64.12	5,032.6	-89.9	-96.2	47.4	0.20	
5,062.0	0.09	36.52	5,057.6	-89.9	-96.1	47.4	0.19	
5,087.0	0.11	39.73	5,082.6	-89.8	-96.1	47.4	0.08	
5,112.0	0.17	82.99	5,107.6	-89.8	-96.0	47.4	0.47	
5,137.0	0.09	72.16	5,132.6	-89.8	-96.0	47.4	0.33	
5,162.0	0.07	47.72	5,157.6	-89.8	-96.0	47.4	0.16	
5,187.0	0.30	13.30	5,182.6	-89.7	-95.9	47.3	0.98	
5,212.0	0.23	29.81	5,207.6	-89.6	-95.9	47.2	0.41	
5,237.0	0.17	6.98	5,232.6	-89.5	-95.9	47.2	0.39	
5,262.0	0.11	210.28	5,257.6	-89.5	-95.9	47.2	1.10	
5,287.0	0.23	50.27	5,282.6	-89.5	-95.8	47.2	1.34	
5,312.0	0.28	34.46	5,307.6	-89.4	-95.8	47.1	0.34	
5,337.0	0.27	42.45	5,332.6	-89.3	-95.7	47.0	0.16	
5,362.0	0.24	43.91	5,357.6	-89.2	-95.6	47.0	0.12	
5,387.0	0.20	56.92	5,382.6	-89.2	-95.5	47.0	0.26	
5,412.0	0.18	38.39	5,407.6	-89.1	-95.5	46.9	0.26	
5,437.0	0.30	347.19	5,432.6	-89.0	-95.5	46.9	0.94	
5,462.0	0.20	28.95	5,457.6	-88.9	-95.5	46.8	0.80	
5,472.4	0.39	66.09	5,467.9	-88.9	-95.4	46.8	2.51	
5,530.0	1.71	283.16	5,525.6	-88.6	-96.1	46.3	3.53	
5,562.0	6.77	281.74	5,557.5	-88.1	-98.4	44.9	15.81	
5,593.0	11.61	281.16	5,588.1	-87.1	-103.2	42.2	15.62	
5,625.0	16.14	279.59	5,619.1	-85.8	-110.8	38.1	14.20	
5,656.0	20.58	278.70	5,648.5	-84.2	-120.4	33.1	14.35	
5,687.0	24.27	277.91	5,677.2	-82.5	-132.1	27.1	11.94	
5,719.0	27.82	276.92	5,705.9	-80.7	-146.1	20.2	11.18	
5,750.0	30.74	275.48	5,733.0	-79.1	-161.1	13.1	9.69	
5,781.0	33.03	273.47	5,759.3	-77.8	-177.5	5.8	8.14	
5,813.0	34.34	270.86	5,785.9	-77.2	-195.2	-1.4	6.10	
5,844.0	35.96	269.48	5,811.3	-77.1	-213.0	-8.1	5.82	
5,875.0	39.22	269.48	5,835.8	-77.3	-231.9	-15.1	10.52	
5,907.0	42.56	267.78	5,860.0	-77.8	-252.9	-22.4	11.00	
5,938.0	44.03	262.53	5,882.6	-79.6	-274.0	-28.6	12.54	
5,970.0	44.85	256.50	5,905.4	-83.7	-296.1	-33.1	13.44	

Received  
Office of the State Geologist  
JAN 13 2016



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Musgrave Unit 2H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Site:</b>	Walnut West Pad: Noland/Musgrave/Schmidle	<b>MD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Well:</b>	Musgrave 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)	
6,001.0	46.16	251.03	5,927.2	-89.9	-317.3	-35.3	13.27	
6,032.0	47.13	245.04	5,948.5	-98.3	-338.2	-35.3	14.39	
6,064.0	47.77	239.58	5,970.1	-109.3	-359.0	-32.9	12.73	
6,095.0	47.49	233.81	5,991.0	-121.8	-378.1	-28.4	13.78	
6,127.0	47.54	227.93	6,012.6	-136.7	-396.4	-21.5	13.55	
6,158.0	47.75	222.81	6,033.5	-152.8	-412.7	-12.6	12.22	
6,189.0	47.51	218.70	6,054.4	-170.1	-427.7	-2.1	9.82	
6,221.0	47.45	214.79	6,076.1	-189.0	-441.8	10.1	9.01	
6,252.0	46.69	210.41	6,097.2	-208.1	-454.0	23.3	10.63	
6,284.0	46.46	205.47	6,119.2	-228.7	-464.9	38.2	11.23	
6,315.0	46.69	199.46	6,140.5	-249.4	-473.5	54.3	14.10	
6,346.0	47.31	193.63	6,161.7	-271.2	-479.9	72.0	13.90	
6,377.0	49.53	190.55	6,182.2	-293.8	-484.8	91.2	10.32	
6,378.0	49.60	190.45	6,182.9	-294.6	-484.9	91.9	10.46	
<b>Middlesex</b>								
6,409.0	51.88	187.47	6,202.5	-318.3	-488.6	112.5	10.46	
6,440.0	54.26	186.33	6,221.1	-342.9	-491.6	134.2	8.22	
6,472.0	57.49	185.26	6,239.1	-369.2	-494.3	157.6	10.47	
6,503.0	61.82	184.57	6,254.7	-395.9	-496.6	181.5	14.10	
6,535.0	66.13	184.49	6,268.8	-424.5	-498.8	207.2	13.47	
6,559.0	68.89	184.21	6,278.0	-446.6	-500.5	227.1	11.53	
<b>Burkett</b>								
6,566.0	69.69	184.13	6,280.4	-453.2	-501.0	232.9	11.53	
6,597.0	72.37	182.82	6,290.5	-482.4	-502.8	259.4	9.52	
6,629.0	75.89	180.44	6,299.3	-513.2	-503.6	287.6	13.12	
6,634.0	76.35	179.54	6,300.5	-518.1	-503.6	292.1	19.71	
<b>Tully</b>								
6,657.0	78.52	175.47	6,305.5	-540.5	-502.7	313.3	19.71	
<b>Marcellus</b>								
6,660.0	78.81	174.94	6,306.1	-543.4	-502.4	316.1	19.71	
6,691.0	80.72	169.54	6,311.6	-573.6	-498.3	345.7	18.21	
6,723.0	80.90	166.20	6,316.7	-604.5	-491.6	376.8	10.32	
6,754.0	80.69	165.31	6,321.6	-634.2	-484.1	407.1	2.91	
6,785.0	80.46	163.74	6,326.7	-663.6	-476.0	437.5	5.05	
6,817.0	79.62	160.33	6,332.2	-693.6	-466.2	468.9	10.82	
6,848.0	80.72	159.52	6,337.5	-722.3	-455.8	499.5	4.38	
6,874.0	84.60	159.18	6,340.9	-746.4	-446.7	525.2	14.98	
6,905.0	88.20	158.38	6,342.8	-775.3	-435.5	556.2	11.89	
6,968.0	88.09	158.97	6,344.8	-833.9	-412.6	619.1	0.95	
7,062.0	89.70	157.63	6,346.7	-921.2	-377.8	713.1	2.23	
7,156.0	89.46	158.56	6,347.3	-1,008.4	-342.8	807.1	1.02	
7,251.0	88.76	158.23	6,348.8	-1,096.8	-307.8	902.1	0.81	
7,345.0	89.36	156.85	6,350.4	-1,183.6	-271.9	996.1	1.60	
7,439.0	88.42	156.43	6,352.2	-1,269.9	-234.6	1,090.0	1.10	
7,533.0	90.20	157.41	6,353.3	-1,356.4	-197.8	1,184.0	2.16	

Received  
Office of Oil & Gas  
JAN 19 2016

<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Musgrave Unit 2H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Site:</b>	Walnut West Pad: Noland/Musgrave/Schmidle	<b>MD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Well:</b>	Musgrave 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)	
7,626.0	90.07	157.22	6,353.1	-1,442.2	-161.9	1,277.0	0.25	
7,720.0	89.13	155.30	6,353.8	-1,528.2	-124.1	1,370.9	2.27	
7,815.0	89.19	158.55	6,355.2	-1,615.6	-86.8	1,465.9	3.42	
7,909.0	89.33	159.32	6,356.4	-1,703.3	-53.0	1,559.9	0.83	
8,003.0	89.53	160.07	6,357.3	-1,791.4	-20.4	1,653.8	0.83	
8,097.0	89.97	158.87	6,357.7	-1,879.5	12.5	1,747.8	1.36	
8,191.0	89.80	159.22	6,357.9	-1,967.2	46.2	1,841.8	0.41	
8,285.0	91.48	157.20	6,356.8	-2,054.5	81.0	1,935.8	2.79	
8,380.0	89.63	153.87	6,355.9	-2,141.0	120.4	2,030.6	4.01	
8,474.0	89.13	152.98	6,356.9	-2,225.0	162.4	2,124.3	1.09	
8,568.0	88.69	154.34	6,358.7	-2,309.3	204.1	2,218.0	1.52	
8,663.0	89.19	158.51	6,360.5	-2,396.3	242.1	2,313.0	4.42	
8,756.0	90.10	159.64	6,361.1	-2,483.2	275.3	2,405.9	1.56	
8,850.0	90.67	160.43	6,360.4	-2,571.5	307.4	2,499.9	1.04	
8,945.0	89.73	159.43	6,360.1	-2,660.7	340.0	2,594.8	1.44	
9,038.0	88.89	158.51	6,361.2	-2,747.5	373.4	2,687.8	1.34	
9,133.0	89.60	158.89	6,362.5	-2,836.0	407.9	2,782.8	0.85	
9,227.0	89.77	157.46	6,363.0	-2,923.3	442.8	2,876.8	1.53	
9,321.0	90.00	159.15	6,363.2	-3,010.6	477.6	2,970.8	1.81	
9,415.0	89.60	159.00	6,363.5	-3,098.4	511.2	3,064.8	0.45	
9,509.0	89.26	158.11	6,364.4	-3,185.9	545.5	3,158.8	1.01	
9,604.0	88.72	157.24	6,366.1	-3,273.8	581.6	3,253.7	1.08	
9,698.0	89.80	159.35	6,367.3	-3,361.1	616.4	3,347.7	2.52	
9,792.0	88.96	158.41	6,368.4	-3,448.8	650.2	3,441.7	1.34	
9,886.0	91.01	159.34	6,368.4	-3,536.5	684.1	3,535.7	2.39	
9,980.0	90.24	158.83	6,367.4	-3,624.3	717.7	3,629.7	0.98	
10,074.0	89.03	157.88	6,367.9	-3,711.6	752.3	3,723.7	1.64	
10,168.0	90.77	158.52	6,368.1	-3,798.9	787.2	3,817.7	1.97	
10,262.0	90.20	158.33	6,367.3	-3,886.3	821.8	3,911.7	0.64	
10,356.0	89.83	158.26	6,367.3	-3,973.6	856.6	4,005.7	0.40	
10,450.0	89.09	158.20	6,368.2	-4,060.9	891.4	4,099.6	0.79	
10,544.0	90.84	158.02	6,368.2	-4,148.2	926.5	4,193.6	1.87	
10,639.0	90.57	157.92	6,367.1	-4,236.2	962.1	4,288.6	0.30	
10,733.0	90.20	158.67	6,366.4	-4,323.5	996.9	4,382.6	0.89	
10,826.0	89.80	158.73	6,366.4	-4,410.2	1,030.6	4,475.6	0.43	
10,921.0	89.83	158.52	6,366.7	-4,498.7	1,065.3	4,570.6	0.22	
11,015.0	88.66	157.47	6,368.0	-4,585.8	1,100.5	4,664.6	1.67	
11,109.0	88.32	157.26	6,370.5	-4,672.5	1,136.6	4,758.6	0.43	
11,203.0	88.59	156.95	6,373.0	-4,759.1	1,173.2	4,852.5	0.44	
11,297.0	88.82	157.50	6,375.1	-4,845.7	1,209.6	4,946.5	0.63	
11,391.0	89.26	156.45	6,376.7	-4,932.2	1,246.3	5,040.5	1.21	
11,485.0	90.34	155.16	6,377.0	-5,018.0	1,284.9	5,134.6	1.79	
11,580.0	89.60	155.79	6,377.1	-5,104.4	1,324.3	5,229.3	1.02	
11,674.0	88.72	157.71	6,378.4	-5,190.8	1,361.4	5,323.2	2.25	

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EOW Completion Report



<b>Company:</b>	Antero	<b>Local Co-ordinate Reference:</b>	Well Musgrave Unit 2H
<b>Project:</b>	Ritchie County WV	<b>TVD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Site:</b>	Walnut West Pad: Noland/Musgrave/Schmidle	<b>MD Reference:</b>	Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Well:</b>	Musgrave 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)
11,768.0	88.56	157.66	6,380.7	-5,277.7	1,397.1	5,417.2	0.18
11,862.0	87.95	157.69	6,383.5	-5,364.6	1,432.8	5,511.2	0.65
11,956.0	89.36	158.37	6,385.7	-5,451.8	1,467.9	5,605.1	1.67
12,050.0	89.40	158.37	6,386.8	-5,539.1	1,502.6	5,699.1	0.04
12,144.0	89.03	158.58	6,388.1	-5,626.6	1,537.1	5,793.1	0.45
12,238.0	89.40	158.21	6,389.3	-5,714.0	1,571.7	5,887.1	0.56
12,332.0	89.29	158.22	6,390.4	-5,801.2	1,606.6	5,981.1	0.12
12,427.0	89.09	158.58	6,391.8	-5,889.6	1,641.5	6,076.1	0.43
12,521.0	89.73	158.35	6,392.7	-5,977.0	1,676.0	6,170.1	0.72
12,615.0	89.56	158.24	6,393.3	-6,064.3	1,710.8	6,264.1	0.22
12,709.0	89.40	157.86	6,394.2	-6,151.5	1,745.9	6,358.1	0.44
12,803.0	88.89	157.73	6,395.6	-6,238.5	1,781.4	6,452.1	0.56
12,898.0	91.07	159.32	6,395.6	-6,326.9	1,816.2	6,547.1	2.84
12,992.0	91.04	159.80	6,393.9	-6,415.0	1,849.0	6,641.0	0.51
13,086.0	90.50	159.73	6,392.6	-6,503.2	1,881.5	6,735.0	0.58
13,180.0	90.10	159.24	6,392.1	-6,591.2	1,914.5	6,828.9	0.67
13,274.0	89.80	158.68	6,392.2	-6,678.9	1,948.2	6,922.9	0.68
13,368.0	89.60	158.17	6,392.7	-6,766.4	1,982.8	7,016.9	0.58
13,462.0	89.09	158.06	6,393.8	-6,853.6	2,017.8	7,110.9	0.56
13,556.0	90.20	157.65	6,394.3	-6,940.6	2,053.3	7,204.9	1.26
13,650.0	90.34	157.98	6,393.9	-7,027.7	2,088.8	7,298.9	0.38
13,744.0	90.31	157.68	6,393.4	-7,114.7	2,124.2	7,392.9	0.32
13,838.0	89.26	156.82	6,393.7	-7,201.4	2,160.6	7,486.9	1.44
13,932.0	90.03	156.16	6,394.3	-7,287.6	2,198.1	7,580.8	1.08
14,027.0	89.83	156.58	6,394.4	-7,374.6	2,236.2	7,675.8	0.49
14,121.0	89.43	155.58	6,395.0	-7,460.6	2,274.3	7,769.7	1.15
14,215.0	89.66	156.32	6,395.8	-7,546.4	2,312.6	7,863.7	0.82
14,309.0	90.77	158.11	6,395.4	-7,633.1	2,349.0	7,957.7	2.24
14,403.0	90.30	156.99	6,394.5	-7,719.9	2,384.9	8,051.7	1.29
14,498.0	90.44	158.40	6,393.9	-7,807.8	2,420.9	8,146.6	1.49
14,592.0	89.09	158.41	6,394.3	-7,895.2	2,455.5	8,240.6	1.44
14,686.0	90.34	161.10	6,394.8	-7,983.4	2,488.0	8,334.6	3.16
14,780.0	89.43	157.94	6,395.0	-8,071.4	2,520.9	8,428.5	3.50
14,875.0	88.72	156.26	6,396.5	-8,158.9	2,557.9	8,523.5	1.92
14,968.0	90.17	157.15	6,397.4	-8,244.4	2,594.7	8,616.5	1.83
15,063.0	89.30	156.63	6,397.8	-8,331.7	2,632.0	8,711.5	1.07
15,157.0	90.24	158.54	6,398.2	-8,418.6	2,667.8	8,805.5	2.26
15,251.0	90.07	157.94	6,398.0	-8,505.9	2,702.6	8,899.5	0.66
15,345.0	89.70	156.21	6,398.2	-8,592.5	2,739.3	8,993.4	1.88
15,440.0	90.44	159.25	6,398.0	-8,680.4	2,775.3	9,088.4	3.29
15,534.0	89.83	159.83	6,397.8	-8,768.5	2,808.1	9,182.4	0.90
15,629.0	89.46	161.30	6,398.4	-8,858.0	2,839.7	9,277.3	1.60
15,723.0	88.86	162.77	6,399.8	-8,947.5	2,868.7	9,371.0	1.69
15,818.0	88.19	160.76	6,402.2	-9,037.6	2,898.4	9,465.8	2.23

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<b>Company:</b> Antero	<b>Local Co-ordinate Reference:</b> Well Musgrave Unit 2H
<b>Project:</b> Ritchie County WV	<b>TVD Reference:</b> Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Site:</b> Walnut West Pad: Noland/Musgrave/Schmidle	<b>MD Reference:</b> Patterson 347: GL 1120' + KB 25' @ 1145.0usft
<b>Well:</b> Musgrave 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

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
15,912.0	88.66	159.24	6,404.8	-9,125.9	2,930.6	9,559.7	1.69
16,007.0	89.46	159.43	6,406.4	-9,214.8	2,964.1	9,654.7	0.87
16,101.0	89.53	160.26	6,407.2	-9,303.1	2,996.5	9,748.6	0.89
16,196.0	88.99	159.41	6,408.4	-9,392.2	3,029.2	9,843.6	1.06
16,290.0	89.19	159.65	6,409.9	-9,480.3	3,062.1	9,937.5	0.33
16,384.0	89.90	159.46	6,410.7	-9,568.4	3,094.9	10,031.5	0.78
16,479.0	88.45	157.06	6,412.0	-9,656.6	3,130.1	10,126.5	2.95
16,573.0	89.90	156.88	6,413.4	-9,743.1	3,166.9	10,220.4	1.55
16,668.0	91.41	156.52	6,412.3	-9,830.3	3,204.4	10,315.4	1.63
16,762.0	91.91	155.72	6,409.6	-9,916.2	3,242.5	10,409.3	1.00
16,856.0	90.34	156.95	6,407.7	-10,002.3	3,280.2	10,503.3	2.12
16,950.0	89.90	156.70	6,407.5	-10,088.7	3,317.2	10,597.2	0.54
17,044.0	89.03	156.61	6,408.4	-10,175.0	3,354.4	10,691.2	0.93
17,138.0	89.43	157.50	6,409.7	-10,261.6	3,391.1	10,785.2	1.04
17,232.0	88.99	156.34	6,411.0	-10,348.0	3,427.9	10,879.1	1.32
17,326.0	90.07	156.03	6,411.7	-10,434.0	3,465.9	10,973.1	1.20
17,420.0	89.87	155.95	6,411.8	-10,519.9	3,504.1	11,067.0	0.23
17,514.0	89.09	156.51	6,412.6	-10,605.9	3,542.0	11,161.0	1.02
17,608.0	89.34	155.92	6,413.9	-10,691.9	3,579.9	11,254.9	0.66
17,702.0	89.50	156.46	6,414.9	-10,777.9	3,617.9	11,348.9	0.60
17,787.0	89.34	157.06	6,415.7	-10,856.0	3,651.4	11,433.8	0.73
17,847.0	89.94	158.10	6,416.1	-10,911.5	3,674.3	11,493.8	2.00

PTB

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/S (usft)	+E/W (usft)	
6,378.0	6,182.9	-294.6	-484.9	Middlesex
6,559.0	6,278.0	-446.6	-500.5	Burkett
6,634.0	6,300.5	-518.1	-503.6	Tully
6,657.0	6,305.5	-540.5	-502.7	Marcellus
17,847.0	6,416.1	-10,911.5	3,674.3	PTB

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

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