



**Antero Resources**  
 Livingston Unit 2H  
 Doddridge County WV  
 Northing: 14254783.27  
 Easting: 1690517.21  
 As Drilled ST1

**Genie Lightfoot**  
 Scientific Drilling  
 421 South Eagle Lane  
 Oklahoma City Oklahoma  
 405-787-3663



**WELL DETAILS: Livingston Unit 2H**  
 Ground Level: 1003.0  
 Slot

+N/-S	+E/-W	Northing	Existing	Longitude	Slot
0.0	0.0	14254783.27	1690517.20	15° 17' 52.9" N	49° 22' 8.55" W

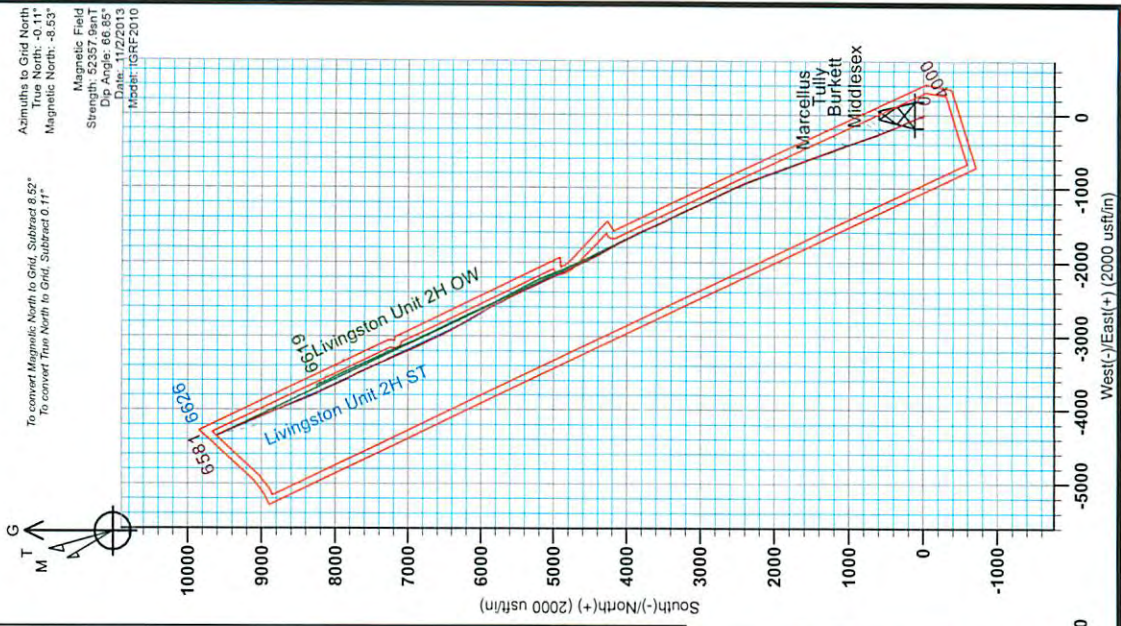
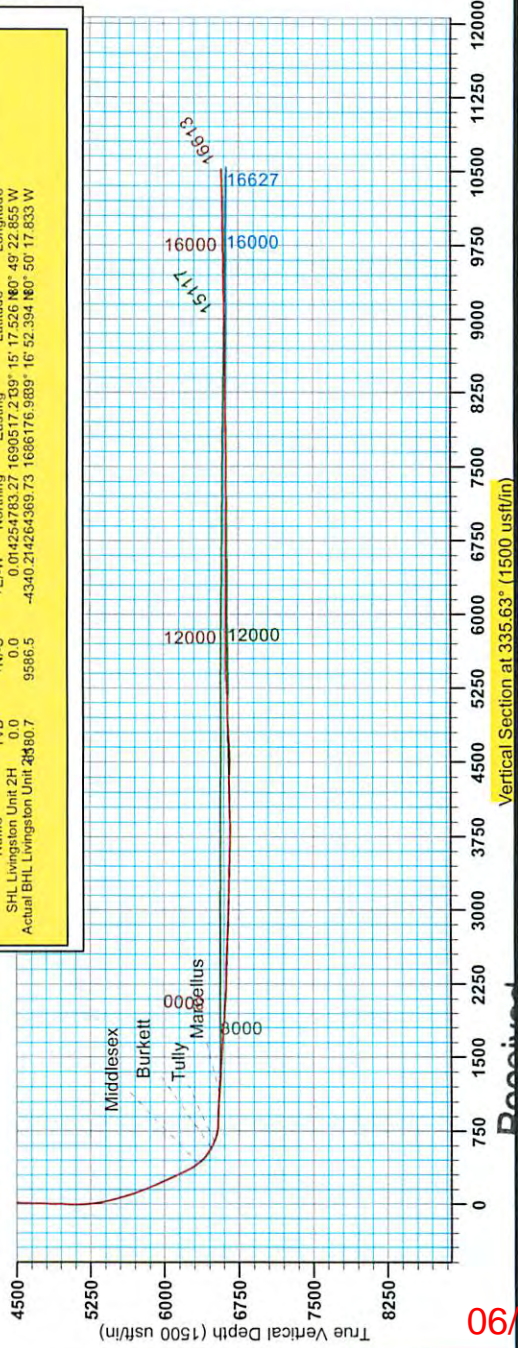
**REFERENCE INFORMATION**  
 Coordinates (N/S Reference: Well Livingston Unit 2H, Grid North, Wellhead V0) Reference: SHL-1000 DT, 1000 DT, 19° 48' @ 1022 usft  
 Measured Depth Reference: Livingston Unit 2H, 1000 DT, 0.2E  
 Calculation Method: Livingston Coordinates

**LEGEND**

- ▲ Livingston Unit 2H, Original Wellpath, As Drilled V0
- ✱ Livingston Unit 2H, Original Wellpath, Plan 6 V0
- ▣ Livingston Unit 2H, Sidetrack 1, Sidetrack Plan 2 V0
- ✱ As Drilled ST1

**DESIGN TARGET DETAILS**

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Livingston Unit 2H	0.0	0.0	0.0	014254783.27	1690517.20	15° 17' 52.9" N	49° 22' 8.55" W
Actual BHL Livingston Unit 2H	3480.7	9586.5	-4340.214264369.73	1666176.989	16° 52' 39.4" N	50° 17' 8.33" W	



To convert Magnetic North to Grid, Subtract 8.52°  
 To convert True North to Grid, Subtract 0.11°  
 Magnetic North - 8.53°  
 Magnetic Field  
 Strength: 52357.9nT  
 Dip Angle: 66.85°  
 Date: 11/22/2013  
 Model: IGRF-2010

06/05/2015

**Received**  
 Office of Oil & Gas  
 MAY 18 2015



# Antero Resources

Doddridge County WV  
Squirrel/Livingston/Vonda Pad  
Livingston Unit 2H  
Original Wellpath

Design: As Drilled

## EOW Completion Report

18 November, 2013

Received  
Office of Oil & Gas  
MAY 18 2015



06/05/2015



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Livingston Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Livingston Unit 2H 1003' GL + 19' KB @ 1022.0us
<b>Site:</b>	Squirrel/Livingston/Vonda Pad	<b>MD Reference:</b>	Livingston Unit 2H 1003' GL + 19' KB @ 1022.0us
<b>Well:</b>	Livingston 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 Fee	<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>	Squirrel/Livingston/Vonda Pad				
<b>Site Position:</b>		<b>Northing:</b>	14,254,779.42 usft	<b>Latitude:</b>	39° 15' 17.488 N
<b>From:</b>	Map	<b>Easting:</b>	1,690,526.27 usft	<b>Longitude:</b>	80° 49' 22.740 W
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.11 °

<b>Well</b>	Livingston Unit 2H, Marcellus					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,254,783.27 usft	<b>Latitude:</b>	39° 15' 17.526 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,690,517.21 usft	<b>Longitude:</b>	80° 49' 22.855 W
<b>Position Uncertainty</b>	2.0 usft		<b>Wellhead Elevation:</b>	1,022.0 usft	<b>Ground Level:</b>	1,003.0 usft

<b>Wellbore</b>	Original Wellpath
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/6/2013	-8.41	66.86	52,367

<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

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	334.82

Survey Program	Date	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	11/18/2013	100.0	4,961.9	Survey #2 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
		5,038.0	15,117.0	Survey #4 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
100.0	0.46	65.73	100.0	0.2	0.4	0.0	0.46
200.0	0.19	110.39	200.0	0.3	0.9	-0.1	0.35
300.0	0.35	83.25	300.0	0.3	1.3	-0.3	0.20
400.0	0.25	149.56	400.0	0.1	1.8	-0.7	0.34
500.0	0.14	178.00	500.0	-0.2	1.9	-1.0	0.14
600.0	0.38	106.67	600.0	-0.4	2.2	-1.3	0.36
700.0	0.34	134.56	700.0	-0.7	2.7	-1.8	0.18
800.0	0.37	106.68	800.0	-1.0	3.2	-2.3	0.17
900.0	0.28	145.78	900.0	-1.3	3.7	-2.8	0.23
1,000.0	0.53	116.98	1,000.0	-1.7	4.2	-3.4	0.31



MAY 18 2015



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Livingston Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Livingston Unit 2H 1003' GL + 19' KB @ 1022.0us
<b>Site:</b>	Squirrel/Livingston/Vonda Pad	<b>MD Reference:</b>	Livingston Unit 2H 1003' GL + 19' KB @ 1022.0us
<b>Well:</b>	Livingston 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)		
1,100.0	0.45	136.49	1,100.0	-2.2	4.9	-4.1	0.18		
1,200.0	0.55	122.58	1,200.0	-2.8	5.6	-4.9	0.16		
1,300.0	0.54	130.64	1,300.0	-3.3	6.4	-5.7	0.08		
1,400.0	0.80	140.71	1,400.0	-4.2	7.2	-6.8	0.28		
1,459.3	0.94	130.38	1,459.3	-4.8	7.8	-7.7	0.35		
1,559.3	2.09	300.23	1,559.3	-4.4	6.8	-6.9	3.02		
1,659.3	4.60	301.67	1,659.1	-1.4	1.9	-2.1	2.51		
1,759.3	5.77	304.63	1,758.7	3.5	-5.7	5.6	1.20		
1,859.3	6.07	306.60	1,858.2	9.6	-14.1	14.6	0.36		
1,959.3	3.34	321.65	1,957.8	15.0	-20.1	22.1	2.97		
2,059.3	2.78	323.73	2,057.7	19.2	-23.4	27.3	0.57		
2,159.3	2.11	325.42	2,157.6	22.7	-25.9	31.5	0.67		
2,259.3	1.49	328.72	2,257.5	25.3	-27.6	34.7	0.63		
2,359.3	1.18	331.32	2,357.5	27.3	-28.7	37.0	0.32		
2,459.3	0.64	336.20	2,457.5	28.8	-29.5	38.6	0.55		
2,559.3	0.46	350.30	2,557.5	29.7	-29.8	39.5	0.22		
2,659.3	0.31	22.79	2,657.5	30.3	-29.7	40.1	0.26		
2,759.3	0.50	119.90	2,757.5	30.3	-29.2	39.9	0.62		
2,859.3	0.89	139.34	2,857.5	29.5	-28.3	38.8	0.45		
2,959.3	1.19	133.91	2,957.5	28.2	-27.1	37.1	0.32		
3,059.3	1.10	130.51	3,057.5	26.9	-25.6	35.2	0.11		
3,159.3	0.88	128.29	3,157.4	25.8	-24.3	33.7	0.22		
3,259.3	0.84	123.21	3,257.4	24.9	-23.1	32.4	0.09		
3,359.3	0.59	130.28	3,357.4	24.2	-22.1	31.3	0.26		
3,459.3	0.46	134.78	3,457.4	23.6	-21.4	30.4	0.14		
3,559.3	0.67	142.11	3,557.4	22.8	-20.7	29.5	0.22		
3,659.3	0.65	138.72	3,657.4	21.9	-20.0	28.4	0.04		
3,759.3	0.84	132.82	3,757.4	21.0	-19.1	27.1	0.20		
3,859.3	0.84	123.62	3,857.4	20.1	-17.9	25.8	0.13		
3,959.3	0.88	144.00	3,957.4	19.1	-16.9	24.4	0.31		
4,059.3	1.24	153.57	4,057.4	17.5	-16.0	22.6	0.40		
4,159.4	1.20	145.80	4,157.3	15.6	-14.9	20.5	0.17		
4,259.4	1.45	155.97	4,257.3	13.6	-13.8	18.2	0.34		
4,359.4	1.48	149.92	4,357.3	11.3	-12.6	15.6	0.16		
4,459.4	1.49	154.31	4,457.2	9.1	-11.4	13.1	0.11		
4,559.4	1.75	155.80	4,557.2	6.5	-10.2	10.2	0.26		
4,659.4	1.79	157.90	4,657.2	3.7	-9.0	7.1	0.08		
4,759.4	1.68	154.24	4,757.1	0.9	-7.8	4.1	0.16		
4,859.4	1.69	159.91	4,857.1	-1.8	-6.6	1.2	0.17		
4,959.4	2.00	162.86	4,957.0	-4.9	-5.6	-2.0	0.32		
4,961.9	2.04	162.37	4,959.6	-5.0	-5.6	-2.1	1.68		
5,038.0	2.14	161.89	5,035.6	-7.6	-4.7	-4.9	0.13		
5,082.0	2.33	157.42	5,079.6	-9.2	-4.1	-6.6	0.59		
5,172.0	2.28	359.88	5,169.5	-9.1	-3.4	-6.8	5.02		



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<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)
5,262.0	7.58	341.55	5,259.2	-1.7	-5.3	0.7	6.07
5,347.0	10.83	334.83	5,343.1	10.9	-10.5	14.3	4.02
5,436.0	12.91	337.01	5,430.2	27.6	-17.9	32.6	2.39
5,526.0	15.30	338.62	5,517.5	47.9	-26.2	54.5	2.69
5,616.0	17.60	338.45	5,603.8	71.6	-35.5	79.9	2.56
5,705.0	19.04	337.79	5,688.3	97.6	-45.9	107.9	1.63
5,795.0	20.66	337.15	5,772.9	125.8	-57.7	138.4	1.82
5,885.0	22.47	336.46	5,856.6	156.2	-70.7	171.4	2.03
5,974.0	24.31	335.99	5,938.3	188.5	-84.9	206.8	2.08
6,064.0	25.33	335.02	6,020.0	222.9	-100.6	244.5	1.22
6,154.0	26.25	335.00	6,101.0	258.4	-117.2	283.7	1.02
6,247.0	27.00	334.25	6,184.1	296.1	-135.0	325.4	0.88
6,292.0	27.44	334.25	6,224.2	314.6	-144.0	346.0	0.98
6,337.0	27.79	333.46	6,264.0	333.3	-153.2	366.8	1.13
6,382.0	32.80	336.63	6,302.9	353.9	-162.7	389.5	11.68
6,427.0	39.39	337.42	6,339.2	378.3	-173.0	416.0	14.68
6,428.0	39.51	337.41	6,340.0	378.9	-173.3	416.6	11.94
<b>Middlesex</b>							
6,472.0	44.76	337.15	6,372.6	406.1	-184.7	446.1	11.94
6,517.0	49.24	336.89	6,403.3	436.4	-197.5	479.0	9.96
6,562.0	53.90	337.42	6,431.3	468.9	-211.2	514.2	10.40
6,606.0	58.30	338.12	6,455.8	502.7	-225.0	550.6	10.09
6,640.0	61.49	337.92	6,472.8	530.0	-236.0	580.0	9.39
<b>Burkett</b>							
6,651.0	62.52	337.86	6,478.0	539.0	-239.7	589.7	9.39
6,696.0	66.57	337.50	6,497.3	576.5	-255.1	630.3	9.03
6,707.0	67.64	337.55	6,501.6	585.9	-259.0	640.4	9.76
<b>Tully</b>							
6,741.0	70.96	337.68	6,513.6	615.3	-271.1	672.2	9.76
6,786.0	74.92	338.56	6,526.8	655.2	-287.1	715.1	9.00
6,831.0	80.81	340.14	6,536.3	696.4	-302.6	758.9	13.53
6,876.0	87.76	340.93	6,540.8	738.6	-317.5	803.5	15.54
6,937.0	88.99	340.41	6,542.5	796.1	-337.7	864.1	2.19
6,982.0	88.46	340.84	6,543.5	838.5	-352.6	908.9	1.52
7,026.0	88.46	340.76	6,544.7	880.1	-367.1	952.6	0.18
7,071.0	87.76	340.41	6,546.2	922.5	-382.0	997.4	1.74
7,116.0	87.14	340.76	6,548.2	964.9	-397.0	1,042.1	1.58
7,161.0	86.17	341.28	6,550.8	1,007.4	-411.6	1,086.8	2.44
7,204.0	85.42	340.86	6,554.0	1,047.9	-425.5	1,129.4	2.01
<b>Marcellus</b>							
7,206.0	85.38	340.84	6,554.1	1,049.8	-426.1	1,131.4	2.01
7,251.0	84.59	339.53	6,558.0	1,092.0	-441.3	1,176.0	3.39
7,296.0	85.36	339.99	6,562.0	1,134.0	-456.8	1,220.7	1.99
7,340.0	84.86	339.00	6,565.7	1,175.1	-472.2	1,264.3	2.51
7,385.0	85.65	338.47	6,569.5	1,216.9	-488.5	1,309.1	2.11



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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,430.0	86.70	338.38	6,572.5	1,258.7	-505.0	1,353.9	2.34
7,475.0	87.05	337.77	6,574.9	1,300.3	-521.8	1,398.8	1.56
7,520.0	87.05	338.38	6,577.2	1,342.0	-538.5	1,443.6	1.35
7,565.0	86.53	339.88	6,579.8	1,384.0	-554.5	1,488.4	3.52
7,610.0	86.79	340.14	6,582.4	1,426.2	-569.9	1,533.2	0.82
7,655.0	86.97	339.88	6,584.8	1,468.4	-585.3	1,577.9	0.70
7,700.0	86.44	339.70	6,587.4	1,510.6	-600.8	1,622.7	1.24
7,744.0	86.17	339.35	6,590.2	1,551.7	-616.1	1,666.4	1.00
7,789.0	86.09	339.35	6,593.3	1,593.8	-632.0	1,711.2	0.18
7,834.0	86.26	339.09	6,596.3	1,635.7	-647.9	1,756.0	0.69
7,879.0	86.35	339.53	6,599.2	1,677.7	-663.8	1,800.7	1.00
7,924.0	86.53	339.88	6,602.0	1,719.9	-679.3	1,845.5	0.87
7,969.0	86.61	339.61	6,604.7	1,762.0	-694.9	1,890.2	0.62
8,014.0	85.82	339.09	6,607.6	1,804.0	-710.7	1,935.0	2.10
8,059.0	85.91	338.74	6,610.9	1,845.9	-726.9	1,979.8	0.80
8,148.0	86.44	338.74	6,616.8	1,928.7	-759.1	2,068.4	0.60
8,238.0	86.79	338.47	6,622.1	2,012.3	-791.9	2,158.0	0.49
8,328.0	89.43	340.41	6,625.1	2,096.5	-823.4	2,247.6	3.64
8,418.0	89.08	339.44	6,626.3	2,181.0	-854.3	2,337.3	1.15
8,508.0	88.55	339.88	6,628.1	2,265.4	-885.6	2,426.9	0.77
8,597.0	88.20	338.12	6,630.7	2,348.5	-917.5	2,515.7	2.02
8,687.0	88.37	338.03	6,633.4	2,431.9	-951.1	2,605.5	0.21
8,777.0	87.75	335.63	6,636.4	2,514.6	-986.5	2,695.4	2.75
8,867.0	87.05	333.73	6,640.5	2,595.9	-1,024.9	2,785.3	2.25
8,956.0	88.29	333.46	6,644.1	2,675.5	-1,064.5	2,874.2	1.43
9,046.0	88.64	332.76	6,646.5	2,755.8	-1,105.1	2,964.1	0.87
9,136.0	88.29	333.55	6,648.9	2,836.0	-1,145.8	3,054.0	0.96
9,226.0	88.02	335.13	6,651.8	2,917.1	-1,184.7	3,144.0	1.78
9,315.0	88.37	336.01	6,654.6	2,998.1	-1,221.5	3,232.9	1.06
9,405.0	89.08	335.22	6,656.6	3,080.1	-1,258.7	3,322.9	1.18
9,495.0	89.25	336.63	6,657.9	3,162.2	-1,295.4	3,412.9	1.58
9,585.0	88.11	335.40	6,660.0	3,244.4	-1,331.9	3,502.8	1.86
9,674.0	88.29	332.58	6,662.8	3,324.4	-1,371.0	3,591.8	3.17
9,764.0	88.99	332.32	6,664.9	3,404.1	-1,412.6	3,681.6	0.83
9,854.0	88.46	333.55	6,666.9	3,484.3	-1,453.5	3,771.6	1.49
9,944.0	91.19	337.15	6,667.2	3,566.0	-1,491.0	3,861.5	5.02
10,033.0	92.15	337.24	6,664.6	3,648.0	-1,525.5	3,950.4	1.08
10,123.0	91.19	335.66	6,662.0	3,730.5	-1,561.5	4,040.4	2.05
10,213.0	91.63	334.08	6,659.8	3,812.0	-1,599.7	4,130.3	1.82
10,303.0	91.36	335.31	6,657.4	3,893.3	-1,638.1	4,220.3	1.40
10,392.0	91.10	334.25	6,655.5	3,973.8	-1,676.0	4,309.3	1.23
10,482.0	92.24	335.13	6,652.9	4,055.1	-1,714.5	4,399.2	1.60
10,572.0	91.36	335.66	6,650.1	4,136.9	-1,751.9	4,489.2	1.14
10,662.0	91.98	335.31	6,647.5	4,218.7	-1,789.3	4,579.1	0.79



MAY 18 2015

<b>Company:</b> Antero Resources	<b>Local Co-ordinate Reference:</b> Well Livingston Unit 2H
<b>Project:</b> Doddridge County WV	<b>TVD Reference:</b> Livingston Unit 2H 1003' GL + 19' KB @ 1022.0us
<b>Site:</b> Squirrel/Livingston/Vonda Pad	<b>MD Reference:</b> Livingston Unit 2H 1003' GL + 19' KB @ 1022.0us
<b>Well:</b> Livingston 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)
10,756.0	90.57	334.96	6,645.4	4,304.0	-1,828.8	4,673.1	1.55
10,851.0	91.10	334.52	6,644.0	4,389.9	-1,869.3	4,768.1	0.73
10,946.0	90.04	333.20	6,643.0	4,475.2	-1,911.2	4,863.1	1.78
11,041.0	89.43	333.73	6,643.5	4,560.2	-1,953.6	4,958.0	0.85
11,135.0	89.52	335.66	6,644.3	4,645.2	-1,993.8	5,052.0	2.06
11,230.0	89.87	335.48	6,644.8	4,731.7	-2,033.1	5,147.0	0.41
11,325.0	90.66	337.68	6,644.4	4,818.8	-2,070.8	5,242.0	2.46
11,419.0	89.78	336.98	6,644.0	4,905.6	-2,107.1	5,335.9	1.20
11,514.0	90.40	337.33	6,643.9	4,993.1	-2,143.9	5,430.8	0.75
11,608.0	91.10	339.53	6,642.7	5,080.5	-2,178.5	5,524.6	2.46
11,702.0	91.01	337.33	6,640.9	5,167.9	-2,213.0	5,618.4	2.34
11,796.0	90.66	333.46	6,639.6	5,253.3	-2,252.2	5,712.4	4.13
11,886.0	91.19	333.90	6,638.1	5,334.0	-2,292.1	5,802.3	0.77
11,976.0	90.31	332.93	6,636.9	5,414.5	-2,332.3	5,892.3	1.46
12,065.0	90.31	333.02	6,636.5	5,493.8	-2,372.8	5,981.2	0.10
12,155.0	90.22	330.83	6,636.0	5,573.2	-2,415.1	6,071.1	2.44
12,245.0	90.13	333.11	6,635.8	5,652.6	-2,457.4	6,161.0	2.54
12,335.0	90.92	331.97	6,634.9	5,732.5	-2,498.9	6,250.9	1.54
12,424.0	90.40	333.90	6,633.9	5,811.7	-2,539.4	6,339.9	2.25
12,514.0	89.16	334.25	6,634.3	5,892.6	-2,578.8	6,429.9	1.43
12,604.0	90.48	337.68	6,634.5	5,974.8	-2,615.4	6,519.8	4.08
12,694.0	90.48	336.36	6,633.8	6,057.7	-2,650.6	6,609.8	1.47
12,783.0	89.69	335.75	6,633.7	6,139.0	-2,686.7	6,698.7	1.12
12,873.0	90.04	334.34	6,633.9	6,220.6	-2,724.6	6,788.7	1.61
12,963.0	90.66	332.58	6,633.3	6,301.1	-2,764.9	6,878.7	2.07
13,053.0	89.52	333.46	6,633.2	6,381.3	-2,805.7	6,968.7	1.60
13,142.0	90.13	333.11	6,633.4	6,460.8	-2,845.7	7,057.6	0.79
13,232.0	91.19	333.73	6,632.4	6,541.3	-2,886.0	7,147.6	1.36
13,322.0	90.48	334.43	6,631.1	6,622.2	-2,925.3	7,237.6	1.11
13,411.0	89.96	335.92	6,630.8	6,703.0	-2,962.7	7,326.6	1.77
13,501.0	90.48	335.66	6,630.4	6,785.1	-2,999.6	7,416.5	0.65
13,591.0	89.96	334.87	6,630.1	6,866.8	-3,037.2	7,506.5	1.05
13,681.0	90.75	334.69	6,629.5	6,948.3	-3,075.6	7,596.5	0.90
13,771.0	89.69	335.66	6,629.2	7,029.9	-3,113.4	7,686.5	1.60
13,860.0	90.84	337.15	6,628.7	7,111.5	-3,149.0	7,775.5	2.11
13,950.0	90.66	335.83	6,627.6	7,194.0	-3,184.9	7,865.5	1.48
14,040.0	89.87	336.63	6,627.2	7,276.4	-3,221.2	7,955.4	1.25
14,130.0	90.92	337.86	6,626.5	7,359.4	-3,256.0	8,045.3	1.80
14,219.0	90.57	334.69	6,625.4	7,440.8	-3,291.8	8,134.3	3.58
14,309.0	90.57	333.37	6,624.5	7,521.7	-3,331.2	8,224.3	1.47
14,399.0	89.16	334.87	6,624.7	7,602.7	-3,370.5	8,314.3	2.29
14,489.0	89.96	335.92	6,625.4	7,684.5	-3,407.9	8,404.3	1.47
14,578.0	91.54	335.75	6,624.2	7,765.7	-3,444.4	8,493.2	1.79
14,668.0	90.31	335.40	6,622.8	7,847.6	-3,481.6	8,583.2	1.42
14,758.0	90.92	334.08	6,621.8	7,929.0	-3,520.0	8,673.2	1.62

<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Livingston Unit 2H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Livingston Unit 2H 1003' GL + 19' KB @ 1022.0us
<b>Site:</b>	Squirrel/Livingston/Vonda Pad	<b>MD Reference:</b>	Livingston Unit 2H 1003' GL + 19' KB @ 1022.0us
<b>Well:</b>	Livingston 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)
14,848.0	91.01	334.34	6,620.3	8,010.1	-3,559.1	8,763.2	0.31
14,938.0	89.60	335.31	6,619.8	8,091.5	-3,597.4	8,853.2	1.90
15,027.0	90.22	335.13	6,619.9	8,172.3	-3,634.7	8,942.2	0.73
15,117.0	91.19	334.78	6,618.8	8,253.8	-3,672.8	9,032.2	1.15

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,428.0	6,340.0	378.9	-173.3	Middlesex
6,640.0	6,472.8	530.0	-236.0	Burkett
6,707.0	6,501.6	585.9	-259.0	Tully
7,204.0	6,554.0	1,047.9	-425.5	Marcellus

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

Received  
Office of Oil & Gas  
MAY 18 2015