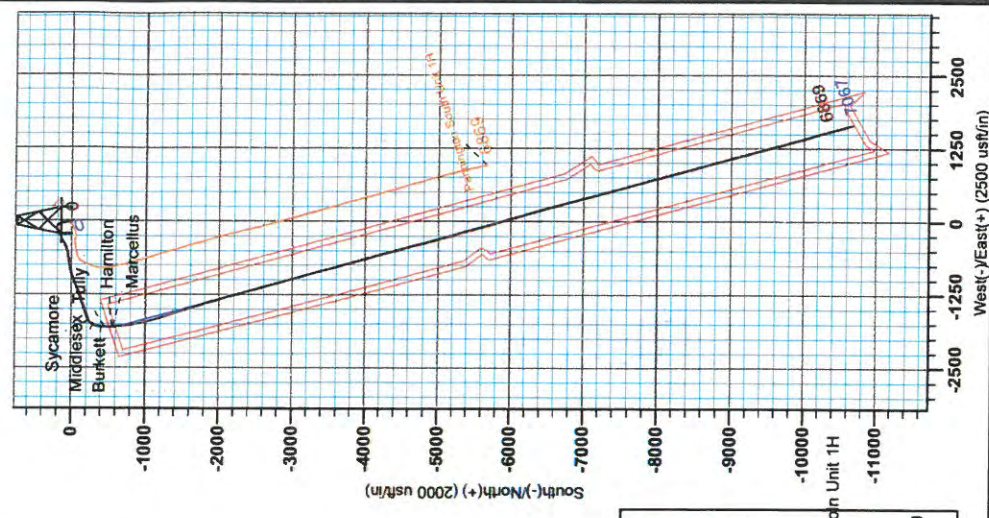
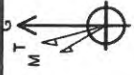


To convert Magnetic North to Grid, Subtract 8.65°  
 To convert True North to Grid, Subtract 0.16°

True North: -0.16°  
 Magnetic North: -8.65°

Magnetic Field  
 Strength: 52207.7 nT  
 Dip Angle: 66.90°  
 Date: 8/24/2014  
 Model: BGGM2014



**WELL DETAILS: Lincoln Unit 1H**

Well Name	Lincoln Unit 1H
Well ID	1713733.06
Well Status	As Drilled
Well Type	Oil
Well Depth	1713733.06
Well Orientation	39° 12' 8.002" N 80° 44' 28.305" W

**REFERENCE INFORMATION**

Coordinates (NAD 83) Reference: West Lincoln Unit 1H, Grid North  
 Wellhead: 1713733.06, 14235780.76, 1713733.06  
 Measured Depth Reference: 1713733.06, 14235780.76, 1713733.06  
 Measured Depth Reference: 1713733.06, 14235780.76, 1713733.06

**PROJECT DETAILS: Doddridge County WV**

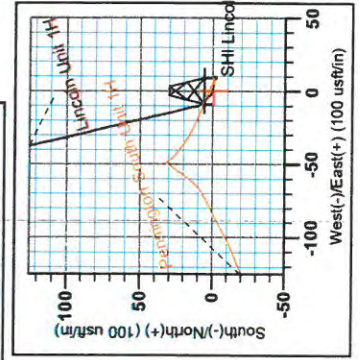
Geocentric System: Universal Transverse Mercator (US Survey Feet)  
 Ellipsoid: Clarke 1866 (NAD83 CONUS)  
 Zone: Zone 17N (84 W to 78 W)  
 System Datum: Mean Sea Level

**LEGEND**

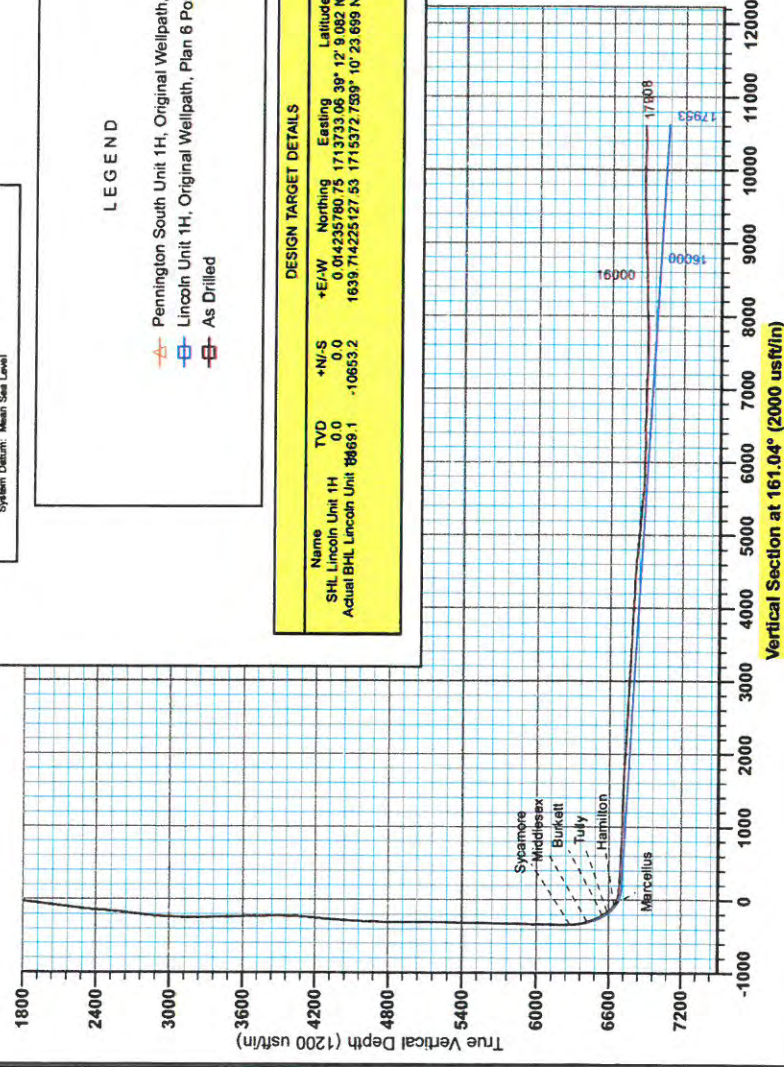
- ▲ - Pennington South Unit 1H, Original Wellpath, As Drilled VO
- - Lincoln Unit 1H, Original Wellpath, Plan 6 Post Gyro VO
- - As Drilled

**DESIGN TARGET DETAILS**

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Lincoln Unit 1H	0.0	0.0	0.0	0 014235780.75	1713733.06	39° 12' 8.062" N	80° 44' 28.305" W
Actual BHL Lincoln Unit 6869	1	-10653.2		1639.714225127.53	17155372.7539	-10° 23' 6.999" N	80° 44' 7.863" W



**Antero Resources**  
 Lincoln Unit 1H  
 Doddridge County WV  
 Northing: 14235780.76  
 Easting: 1713733.06  
 As Drilled



Vertical Section at 161.04° (2000 usf/in)



# **Antero Resources**

**Doddridge County WV  
Pennington South/Anchor/Porter/Lincoln  
Lincoln Unit 1H  
Original Wellpath**

**Design: As Drilled**

## **EOW Completion Report**

**08 October, 2014**







EOW Completion Report



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Pennington South/Anchor/Porter/Lincoln  
**Well:** Lincoln Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Lincoln Unit 1H  
**TVD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**MD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** 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>	Pennington South/Anchor/Porter/Lincoln		
<b>Site Position:</b>		<b>Northing:</b>	14,235,778.90usft
<b>From:</b>	Map	<b>Easting:</b>	1,713,742.09usft
<b>Position Uncertainty:</b>	2.0 usft	<b>Slot Radius:</b>	13-3/16"
		<b>Latitude:</b>	39° 12' 9.064 N
		<b>Longitude:</b>	80° 44' 28.190 W
		<b>Grid Convergence:</b>	0.16 °

<b>Well</b>	Lincoln Unit 1H, Marcellus		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b> 14,235,780.76 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b> 1,713,733.06 usft
<b>Position Uncertainty</b>	2.0 usft	<b>Wellhead Elevation:</b>	1,082.0 usft
		<b>Ground Level:</b>	1,060.0 usft

**Wellbore** Original Wellpath

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	6/24/2014	-8.49	66.80	52,208

**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	161.04

Survey Program	Date	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	10/8/2014	25.0	5,250.0	Survey #7 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
		5,366.0	17,908.0	Survey #8 MWD (Original Wellpath)	MWD SDI	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
25.0	0.08	251.33	25.0	0.0	0.0	0.0	0.32
50.0	0.16	251.33	50.0	0.0	-0.1	0.0	0.32
75.0	0.24	251.33	75.0	-0.1	-0.1	0.0	0.32
100.0	0.33	251.33	100.0	-0.1	-0.3	0.0	0.36
125.0	0.30	306.04	125.0	-0.1	-0.4	-0.1	1.16
150.0	0.37	309.89	150.0	0.0	-0.5	-0.2	0.29
175.0	0.35	316.27	175.0	0.1	-0.6	-0.3	0.18
200.0	0.39	305.68	200.0	0.2	-0.7	-0.5	0.32
225.0	0.36	306.54	225.0	0.3	-0.9	-0.6	0.12
250.0	0.40	300.96	250.0	0.4	-1.0	-0.7	0.22



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Pennington South/Anchor/Porter/Lincoln  
**Well:** Lincoln Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Lincoln Unit 1H  
**TVD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**MD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
275.0	0.38	290.40	275.0	0.5	-1.2	-0.8	0.30
300.0	0.35	302.55	300.0	0.6	-1.3	-1.0	0.33
325.0	0.34	290.32	325.0	0.6	-1.4	-1.1	0.30
350.0	0.32	287.60	350.0	0.7	-1.6	-1.1	0.10
375.0	0.28	286.82	375.0	0.7	-1.7	-1.2	0.16
400.0	0.25	291.78	400.0	0.7	-1.8	-1.3	0.15
425.0	0.26	298.32	425.0	0.8	-1.9	-1.4	0.12
450.0	0.36	315.71	450.0	0.9	-2.0	-1.5	0.54
475.0	0.37	323.97	475.0	1.0	-2.1	-1.6	0.21
500.0	0.40	319.29	500.0	1.1	-2.2	-1.8	0.17
525.0	0.42	325.00	525.0	1.3	-2.3	-2.0	0.18
550.0	0.46	322.50	550.0	1.4	-2.4	-2.1	0.18
575.0	0.52	324.19	575.0	1.6	-2.6	-2.3	0.25
600.0	0.52	321.58	600.0	1.8	-2.7	-2.6	0.09
625.0	0.55	326.31	625.0	2.0	-2.8	-2.8	0.21
650.0	0.60	325.62	650.0	2.2	-3.0	-3.0	0.20
675.0	0.56	325.39	675.0	2.4	-3.1	-3.3	0.16
700.0	0.57	318.68	700.0	2.6	-3.3	-3.5	0.27
725.0	0.53	319.85	725.0	2.8	-3.4	-3.7	0.17
750.0	0.63	317.94	750.0	3.0	-3.6	-4.0	0.41
775.0	0.63	317.69	775.0	3.2	-3.8	-4.2	0.01
800.0	0.62	319.12	800.0	3.4	-4.0	-4.5	0.07
825.0	0.64	324.39	825.0	3.6	-4.1	-4.7	0.25
850.0	0.59	315.42	850.0	3.8	-4.3	-5.0	0.43
875.0	0.59	317.57	875.0	4.0	-4.5	-5.2	0.09
900.0	0.59	316.01	900.0	4.2	-4.7	-5.4	0.06
925.0	0.61	309.79	925.0	4.3	-4.9	-5.7	0.27
950.0	0.55	313.77	950.0	4.5	-5.0	-5.9	0.29
975.0	0.58	312.33	975.0	4.7	-5.2	-6.1	0.13
1,000.0	0.53	315.20	1,000.0	4.8	-5.4	-6.3	0.23
1,025.0	0.53	312.06	1,025.0	5.0	-5.6	-6.5	0.12
1,050.0	0.53	319.59	1,050.0	5.2	-5.7	-6.7	0.28
1,075.0	0.59	314.20	1,075.0	5.3	-5.9	-7.0	0.32
1,100.0	0.51	317.81	1,100.0	5.5	-6.1	-7.2	0.35
1,125.0	0.53	317.61	1,125.0	5.7	-6.2	-7.4	0.08
1,150.0	0.56	315.44	1,150.0	5.9	-6.4	-7.6	0.15
1,175.0	0.55	315.07	1,175.0	6.0	-6.5	-7.8	0.04
1,200.0	0.57	315.05	1,200.0	6.2	-6.7	-8.0	0.08
1,225.0	0.57	317.76	1,225.0	6.4	-6.9	-8.3	0.11
1,250.0	0.61	316.38	1,250.0	6.6	-7.1	-8.5	0.17
1,275.0	0.55	317.72	1,275.0	6.8	-7.2	-8.7	0.25
1,300.0	0.56	318.01	1,300.0	6.9	-7.4	-9.0	0.04
1,325.0	0.59	314.23	1,325.0	7.1	-7.6	-9.2	0.19
1,350.0	0.56	310.65	1,350.0	7.3	-7.8	-9.4	0.19





EOW Completion Report



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Pennington South/Anchor/Porter/Lincoln  
**Well:** Lincoln Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Lincoln Unit 1H  
**TVD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**MD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
1,375.0	0.63	316.90	1,375.0	7.5	-7.9	-9.6	0.38
1,400.0	0.66	319.05	1,399.9	7.7	-8.1	-9.9	0.15
1,425.0	0.63	312.58	1,424.9	7.9	-8.3	-10.2	0.31
1,450.0	0.63	306.85	1,449.9	8.0	-8.5	-10.4	0.25
1,475.0	0.63	315.32	1,474.9	8.2	-8.8	-10.6	0.37
1,500.0	0.59	328.08	1,499.9	8.4	-8.9	-10.9	0.57
1,525.0	0.68	323.65	1,524.9	8.7	-9.1	-11.1	0.41
1,550.0	0.71	330.36	1,549.9	8.9	-9.2	-11.4	0.35
1,575.0	0.75	326.42	1,574.9	9.2	-9.4	-11.7	0.26
1,600.0	0.93	319.40	1,599.9	9.5	-9.6	-12.1	0.83
1,625.0	0.92	327.48	1,624.9	9.8	-9.9	-12.5	0.52
1,650.0	1.35	335.27	1,649.9	10.2	-10.1	-13.0	1.82
1,675.0	2.91	351.04	1,674.9	11.1	-10.3	-13.9	6.61
1,700.0	4.37	350.86	1,699.9	12.7	-10.6	-15.4	5.84
1,725.0	6.02	347.58	1,724.8	14.9	-11.0	-17.7	6.70
1,750.0	7.78	346.15	1,749.6	17.8	-11.7	-20.7	7.07
1,775.0	8.29	345.60	1,774.3	21.2	-12.5	-24.2	2.06
1,800.0	8.54	345.21	1,799.1	24.8	-13.5	-27.8	1.03
1,825.0	8.90	345.12	1,823.8	28.4	-14.4	-31.6	1.44
1,850.0	9.10	345.41	1,848.5	32.2	-15.4	-35.5	0.82
1,875.0	9.57	347.37	1,873.1	36.2	-16.4	-39.5	2.27
1,900.0	10.10	348.35	1,897.8	40.3	-17.3	-43.8	2.22
1,925.0	10.52	347.39	1,922.4	44.7	-18.2	-48.2	1.82
1,950.0	11.82	346.63	1,946.9	49.4	-19.3	-53.0	5.23
1,975.0	12.56	346.37	1,971.3	54.6	-20.5	-58.3	2.97
2,000.0	12.96	346.07	1,995.7	59.9	-21.9	-63.8	1.62
2,025.0	13.22	346.10	2,020.1	65.4	-23.2	-69.4	1.04
2,050.0	12.95	346.59	2,044.4	70.9	-24.6	-75.0	1.17
2,075.0	12.52	346.01	2,068.8	76.3	-25.9	-80.5	1.79
2,100.0	12.19	346.17	2,093.2	81.5	-27.1	-85.9	1.33
2,125.0	11.89	345.99	2,117.7	86.5	-28.4	-91.1	1.21
2,150.0	11.52	346.00	2,142.1	91.4	-29.6	-96.1	1.48
2,175.0	11.17	347.04	2,166.7	96.2	-30.8	-101.0	1.62
2,200.0	11.01	346.54	2,191.2	100.9	-31.9	-105.8	0.75
2,225.0	10.65	346.60	2,215.7	105.5	-33.0	-110.5	1.44
2,250.0	10.50	347.30	2,240.3	109.9	-34.0	-115.0	0.79
2,275.0	10.28	347.43	2,264.9	114.3	-35.0	-119.5	0.88
2,300.0	9.92	346.58	2,289.5	118.6	-36.0	-123.9	1.56
2,325.0	9.56	346.81	2,314.2	122.7	-36.9	-128.1	1.45
2,350.0	9.21	347.10	2,338.8	126.7	-37.9	-132.1	1.41
2,375.0	9.18	347.28	2,363.5	130.6	-38.8	-136.1	0.17
2,400.0	8.59	346.62	2,388.2	134.4	-39.6	-139.9	2.39
2,425.0	8.42	346.88	2,412.9	138.0	-40.5	-143.6	0.70
2,450.0	8.09	346.65	2,437.7	141.5	-41.3	-147.2	1.33
2,475.0	8.03	347.92	2,462.4	144.9	-42.1	-150.7	0.75



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Pennington South/Anchor/Porter/Lincoln  
**Well:** Lincoln Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Lincoln Unit 1H  
**TVD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**MD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

**Survey**

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
2,500.0	7.93	347.81	2,487.2	148.3	-42.8	-154.1	0.40
2,525.0	7.88	346.62	2,511.9	151.6	-43.6	-157.5	0.68
2,550.0	8.67	343.51	2,536.7	155.1	-44.5	-161.1	3.63
2,575.0	9.39	340.91	2,561.4	158.8	-45.7	-165.1	3.31
2,600.0	10.31	336.73	2,586.0	162.8	-47.2	-169.3	4.66
2,625.0	11.14	330.59	2,610.6	167.0	-49.3	-173.9	5.64
2,650.0	11.98	327.12	2,635.1	171.3	-51.9	-178.8	4.36
2,675.0	12.78	323.89	2,659.5	175.7	-54.9	-184.0	4.23
2,700.0	13.35	321.24	2,683.8	180.2	-58.4	-189.3	3.31
2,725.0	13.50	317.55	2,708.1	184.6	-62.2	-194.7	3.48
2,750.0	13.61	312.57	2,732.5	188.7	-66.3	-200.0	4.69
2,775.0	13.71	307.96	2,756.7	192.5	-70.8	-205.1	4.37
2,800.0	13.53	303.47	2,781.0	195.9	-75.6	-209.9	4.29
2,825.0	13.46	298.14	2,805.4	198.9	-80.6	-214.3	4.98
2,850.0	13.38	292.80	2,829.7	201.4	-85.8	-218.4	4.97
2,875.0	13.56	288.02	2,854.0	203.5	-91.3	-222.1	4.51
2,900.0	13.72	284.31	2,878.3	205.1	-96.9	-225.5	3.56
2,925.0	14.03	279.91	2,902.6	206.3	-102.8	-228.5	4.40
2,950.0	14.34	275.30	2,926.8	207.2	-108.8	-231.3	4.68
2,975.0	15.03	271.70	2,951.0	207.5	-115.2	-233.7	4.58
3,000.0	15.62	268.87	2,975.1	207.6	-121.8	-235.9	3.81
3,025.0	16.31	266.62	2,999.1	207.3	-128.6	-237.8	3.71
3,050.0	16.96	264.32	3,023.1	206.7	-135.8	-239.6	3.70
3,075.0	17.83	261.21	3,046.9	205.8	-143.2	-241.1	5.09
3,100.0	18.39	258.38	3,070.7	204.4	-150.8	-242.3	4.17
3,125.0	19.03	255.57	3,094.4	202.6	-158.6	-243.1	4.42
3,150.0	19.43	253.28	3,118.0	200.4	-166.6	-243.6	3.41
3,175.0	19.77	251.25	3,141.5	197.8	-174.6	-243.8	3.04
3,200.0	20.07	251.12	3,165.0	195.1	-182.6	-243.8	1.21
3,225.0	20.65	250.34	3,188.5	192.2	-190.8	-243.8	2.56
3,250.0	21.24	249.41	3,211.8	189.1	-199.2	-243.6	2.71
3,275.0	21.94	248.26	3,235.1	185.8	-207.8	-243.2	3.27
3,300.0	22.54	247.06	3,258.2	182.2	-216.6	-242.7	3.01
3,325.0	23.20	246.11	3,281.2	178.3	-225.5	-241.9	3.02
3,350.0	23.68	245.81	3,304.2	174.3	-234.5	-241.0	1.98
3,375.0	23.93	246.60	3,327.1	170.2	-243.8	-240.2	1.62
3,400.0	24.46	248.42	3,349.9	166.3	-253.2	-239.6	3.66
3,425.0	25.09	250.79	3,372.6	162.7	-263.1	-239.3	4.70
3,450.0	25.82	251.77	3,395.1	159.2	-273.2	-239.4	3.37
3,475.0	26.16	251.75	3,417.6	155.8	-283.6	-239.5	1.36
3,500.0	26.08	250.74	3,440.0	152.2	-294.1	-239.5	1.81
3,525.0	25.55	248.73	3,462.6	148.5	-304.3	-239.3	4.09
3,550.0	23.88	246.66	3,485.3	144.5	-314.0	-238.7	7.52
3,575.0	22.16	244.69	3,508.3	140.5	-322.9	-237.8	7.54





**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Pennington South/Anchor/Porter/Lincoln  
**Well:** Lincoln Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Lincoln Unit 1H  
**TVD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**MD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
3,600.0	20.91	243.09	3,531.5	136.5	-331.1	-236.6	5.52
3,625.0	19.80	241.29	3,555.0	132.4	-338.8	-235.3	5.10
3,650.0	19.63	240.49	3,578.5	128.3	-346.2	-233.8	1.28
3,675.0	20.02	241.50	3,602.0	124.2	-353.6	-232.3	2.08
3,700.0	20.36	243.17	3,625.5	120.2	-361.2	-231.0	2.68
3,725.0	20.84	244.32	3,648.9	116.3	-369.1	-229.9	2.51
3,750.0	21.25	244.89	3,672.2	112.5	-377.2	-228.9	1.83
3,775.0	22.00	245.13	3,695.5	108.6	-385.6	-227.9	3.02
3,800.0	22.54	245.14	3,718.6	104.6	-394.2	-227.0	2.16
3,825.0	23.15	245.21	3,741.6	100.5	-403.0	-226.0	2.44
3,850.0	23.60	245.44	3,764.6	96.4	-412.0	-225.0	1.84
3,875.0	23.93	246.53	3,787.5	92.3	-421.2	-224.1	2.20
3,900.0	24.38	248.23	3,810.3	88.3	-430.6	-223.5	3.31
3,925.0	24.93	249.39	3,833.0	84.6	-440.4	-223.0	2.93
3,950.0	25.40	250.79	3,855.6	80.9	-450.4	-222.9	3.03
3,975.0	25.99	251.94	3,878.1	77.5	-460.6	-222.9	3.09
4,000.0	26.51	252.28	3,900.6	74.1	-471.1	-223.1	2.17
4,025.0	26.95	252.51	3,922.9	70.7	-481.9	-223.4	1.81
4,050.0	26.71	254.26	3,945.2	67.5	-492.7	-223.9	3.30
4,075.0	26.55	256.59	3,967.6	64.6	-503.5	-224.7	4.23
4,100.0	26.38	259.01	3,989.9	62.3	-514.4	-226.0	4.37
4,125.0	26.72	260.52	4,012.3	60.3	-525.4	-227.7	3.02
4,150.0	27.64	261.16	4,034.5	58.5	-536.7	-229.7	3.86
4,175.0	28.42	261.53	4,056.6	56.7	-548.3	-231.8	3.20
4,200.0	29.22	261.67	4,078.5	54.9	-560.2	-234.0	3.21
4,225.0	29.92	262.38	4,100.3	53.2	-572.4	-236.3	3.13
4,250.0	30.50	263.75	4,121.9	51.7	-584.9	-239.0	3.60
4,275.0	30.93	264.48	4,143.3	50.4	-597.6	-241.8	2.28
4,300.0	31.56	264.77	4,164.7	49.2	-610.5	-244.9	2.59
4,325.0	32.18	264.93	4,186.0	48.0	-623.7	-248.0	2.50
4,350.0	32.26	264.72	4,207.1	46.8	-636.9	-251.2	0.55
4,375.0	32.37	264.13	4,228.2	45.5	-650.3	-254.3	1.34
4,400.0	32.55	263.42	4,249.3	44.1	-663.6	-257.3	1.69
4,425.0	32.78	263.20	4,270.4	42.5	-677.0	-260.1	1.04
4,450.0	32.76	263.01	4,291.4	40.9	-690.4	-263.0	0.42
4,475.0	32.34	262.71	4,312.5	39.2	-703.8	-265.7	1.80
4,500.0	32.23	262.02	4,333.6	37.4	-717.0	-268.3	1.54
4,525.0	32.40	261.63	4,354.7	35.5	-730.2	-270.8	1.08
4,550.0	32.72	261.25	4,375.8	33.5	-743.5	-273.3	1.52
4,575.0	32.37	260.78	4,396.9	31.4	-756.8	-275.6	1.73
4,600.0	32.43	260.84	4,418.0	29.3	-770.0	-277.9	0.27
4,625.0	32.37	260.93	4,439.1	27.1	-783.3	-280.2	0.31
4,650.0	32.06	260.77	4,460.2	25.0	-796.4	-282.4	1.29
4,675.0	31.69	260.59	4,481.5	22.9	-809.5	-284.7	1.53



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Pennington South/Anchor/Porter/Lincoln  
**Well:** Lincoln Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Lincoln Unit 1H  
**TVD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**MD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

**Survey**

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
4,700.0	30.77	260.42	4,502.8	20.8	-822.2	-286.8	3.70
4,725.0	30.38	260.50	4,524.4	18.6	-834.8	-288.9	1.57
4,750.0	29.50	259.92	4,546.0	16.5	-847.1	-290.9	3.71
4,775.0	29.11	259.29	4,567.8	14.3	-859.1	-292.7	1.99
4,800.0	28.61	258.89	4,589.7	12.0	-871.0	-294.4	2.14
4,825.0	27.91	258.08	4,611.8	9.7	-882.6	-295.9	3.19
4,850.0	27.36	257.42	4,633.9	7.2	-893.9	-297.3	2.52
4,875.0	26.76	257.06	4,656.2	4.7	-905.0	-298.5	2.49
4,900.0	25.57	257.27	4,678.6	2.3	-915.7	-299.7	4.77
4,925.0	24.65	257.31	4,701.2	-0.1	-926.1	-300.8	3.68
4,950.0	24.53	256.39	4,724.0	-2.4	-936.2	-301.9	1.60
4,975.0	25.17	256.02	4,746.7	-5.0	-946.4	-302.8	2.63
5,000.0	25.02	255.18	4,769.3	-7.6	-956.7	-303.7	1.55
5,025.0	24.31	254.19	4,792.0	-10.3	-966.7	-304.3	3.29
5,050.0	24.39	253.89	4,814.8	-13.2	-976.7	-304.9	0.59
5,075.0	25.19	253.10	4,837.5	-16.2	-986.7	-305.3	3.46
5,100.0	25.50	252.53	4,860.1	-19.3	-996.9	-305.6	1.58
5,125.0	25.40	251.46	4,882.7	-22.6	-1,007.1	-305.8	1.88
5,150.0	25.81	250.93	4,905.2	-26.1	-1,017.4	-305.8	1.88
5,175.0	26.41	250.28	4,927.6	-29.8	-1,027.8	-305.8	2.66
5,200.0	26.72	249.87	4,950.0	-33.6	-1,038.3	-305.6	1.44
5,225.0	26.51	249.38	4,972.4	-37.5	-1,048.8	-305.3	1.22
5,250.0	26.48	250.48	4,994.7	-41.3	-1,059.2	-305.1	1.97
5,366.0	25.70	251.38	5,098.9	-58.0	-1,107.4	-305.0	0.75
5,463.0	26.30	252.70	5,186.1	-71.1	-1,147.9	-305.7	0.86
5,559.0	26.80	254.79	5,272.0	-83.1	-1,189.1	-307.8	1.10
5,655.0	26.77	253.23	5,357.7	-95.0	-1,230.7	-310.0	0.73
5,752.0	26.86	253.34	5,444.2	-107.6	-1,272.6	-311.7	0.11
5,847.0	28.62	257.37	5,528.3	-118.7	-1,315.4	-315.1	2.71
5,941.0	27.62	257.27	5,611.2	-128.4	-1,358.6	-319.9	1.07
6,037.0	28.19	252.95	5,696.1	-140.0	-1,402.0	-323.1	2.19
6,134.0	26.99	251.07	5,782.1	-153.9	-1,444.7	-323.9	1.53
6,230.0	28.58	255.97	5,867.0	-166.5	-1,487.6	-325.9	2.90
6,326.0	27.09	255.41	5,951.9	-177.6	-1,531.0	-329.5	1.58
6,422.0	28.51	257.74	6,036.8	-187.9	-1,574.6	-333.8	1.86
6,519.0	26.96	256.14	6,122.7	-198.1	-1,618.5	-338.5	1.77
6,615.0	30.79	252.84	6,206.7	-210.6	-1,663.2	-341.2	4.32
6,647.0	30.90	250.95	6,234.2	-215.7	-1,678.8	-341.4	3.05
6,679.0	30.65	244.38	6,261.7	-221.9	-1,693.9	-340.5	10.53
6,698.0	30.81	240.29	6,278.0	-226.4	-1,702.5	-339.0	11.03
<b>Sycamore</b>							
6,711.0	31.00	237.52	6,289.2	-229.9	-1,708.2	-337.6	11.03
6,743.0	32.22	231.19	6,316.4	-239.6	-1,721.8	-332.8	11.04
6,775.0	32.68	224.57	6,343.4	-251.1	-1,734.5	-326.0	11.19





**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Pennington South/Anchor/Porter/Lincoln  
**Well:** Lincoln Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Lincoln Unit 1H  
**TVD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**MD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

**Survey**

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
6,807.0	32.98	218.48	6,370.3	-264.1	-1,746.0	-317.5	10.36
6,839.0	35.42	213.52	6,396.8	-278.7	-1,756.5	-307.2	11.57
6,866.0	36.60	209.12	6,418.7	-292.2	-1,764.8	-297.0	10.52
<b>Middlesex</b>							
6,871.0	36.83	208.33	6,422.7	-294.8	-1,766.2	-295.0	10.52
6,903.0	38.18	203.37	6,448.1	-312.4	-1,774.7	-281.2	10.33
6,936.0	39.71	197.60	6,473.7	-331.8	-1,781.9	-265.2	11.92
6,968.0	41.87	193.48	6,498.0	-351.9	-1,787.5	-247.9	10.78
7,000.0	44.62	189.84	6,521.3	-373.4	-1,791.9	-229.1	11.60
7,032.0	48.06	187.11	6,543.4	-396.3	-1,795.3	-208.5	12.39
7,041.0	48.87	186.57	6,549.3	-403.0	-1,796.1	-202.5	10.07
<b>Burkett</b>							
7,064.0	50.96	185.26	6,564.1	-420.5	-1,797.9	-186.5	10.07
7,096.0	53.75	182.59	6,583.7	-445.7	-1,799.6	-163.2	10.94
7,104.0	54.54	182.17	6,588.4	-452.2	-1,799.9	-157.1	10.73
<b>Tully</b>							
7,128.0	56.91	180.96	6,601.9	-472.0	-1,800.5	-138.5	10.73
7,160.0	60.94	178.74	6,618.4	-499.4	-1,800.4	-112.6	13.92
7,192.0	64.06	178.24	6,633.2	-527.8	-1,799.6	-85.5	9.85
7,216.0	67.52	178.36	6,643.0	-549.7	-1,799.0	-64.6	14.41
<b>Hamilton</b>							
7,224.0	68.67	178.40	6,646.0	-557.1	-1,798.8	-57.5	14.41
7,228.0	69.19	178.40	6,647.4	-560.8	-1,798.7	-54.0	13.06
<b>Marcellus</b>							
7,256.0	72.85	178.38	6,656.5	-587.3	-1,797.9	-28.7	13.06
7,288.0	75.71	177.07	6,665.2	-618.1	-1,796.7	0.8	9.77
7,320.0	79.17	174.92	6,672.2	-649.2	-1,794.5	31.0	12.65
7,353.0	83.23	173.77	6,677.2	-681.7	-1,791.3	62.7	12.78
7,412.0	89.52	171.44	6,680.9	-740.0	-1,783.7	120.3	11.37
7,475.0	87.76	166.87	6,682.4	-801.9	-1,771.9	182.7	7.77
7,571.0	86.96	166.08	6,686.9	-895.1	-1,749.4	278.1	1.17
7,667.0	88.90	162.39	6,690.3	-987.4	-1,723.4	373.9	4.34
7,762.0	88.55	161.95	6,692.4	-1,077.8	-1,694.3	468.9	0.59
7,858.0	88.64	158.43	6,694.8	-1,168.1	-1,661.8	564.8	3.67
7,954.0	88.11	157.55	6,697.5	-1,257.1	-1,625.8	660.6	1.07
8,050.0	87.49	156.58	6,701.2	-1,345.4	-1,588.4	756.3	1.20
8,146.0	90.31	159.31	6,703.1	-1,434.4	-1,552.4	852.2	4.09
8,242.0	89.43	158.61	6,703.3	-1,524.0	-1,517.9	948.1	1.17
8,339.0	88.46	157.73	6,705.1	-1,614.0	-1,481.9	1,045.0	1.35
8,434.0	88.55	158.43	6,707.5	-1,702.1	-1,446.4	1,139.8	0.74
8,529.0	88.11	157.90	6,710.3	-1,790.2	-1,411.1	1,234.6	0.72
8,625.0	90.31	161.77	6,711.6	-1,880.3	-1,378.0	1,330.6	4.64
8,720.0	89.43	160.63	6,711.8	-1,970.3	-1,347.4	1,425.6	1.52
8,816.0	88.90	160.80	6,713.2	-2,060.9	-1,315.7	1,521.6	0.58
8,911.0	88.55	160.54	6,715.4	-2,150.5	-1,284.3	1,616.5	0.46



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Pennington South/Anchor/Porter/Lincoln  
**Well:** Lincoln Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Lincoln Unit 1H  
**TVD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**MD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
9,008.0	88.02	160.36	6,718.3	-2,241.8	-1,251.8	1,713.5	0.58
9,104.0	87.58	160.72	6,721.9	-2,332.3	-1,219.9	1,809.4	0.59
9,200.0	87.14	160.10	6,726.4	-2,422.6	-1,187.7	1,905.3	0.79
9,296.0	87.58	160.72	6,730.8	-2,513.0	-1,155.6	2,001.2	0.79
9,392.0	88.90	160.80	6,733.7	-2,603.6	-1,123.9	2,097.1	1.38
9,488.0	88.55	160.36	6,735.9	-2,694.1	-1,092.0	2,193.1	0.59
9,585.0	87.67	160.10	6,739.1	-2,785.3	-1,059.2	2,290.1	0.95
9,681.0	88.90	161.15	6,741.9	-2,875.8	-1,027.4	2,386.0	1.68
9,777.0	88.46	160.54	6,744.2	-2,966.5	-995.9	2,482.0	0.78
9,873.0	88.37	160.28	6,746.8	-3,056.9	-963.7	2,577.9	0.29
9,968.0	87.58	158.69	6,750.2	-3,145.8	-930.5	2,672.8	1.87
10,064.0	87.76	159.75	6,754.1	-3,235.5	-896.4	2,768.7	1.12
10,160.0	88.55	162.65	6,757.2	-3,326.3	-865.5	2,864.7	3.13
10,256.0	88.29	162.65	6,759.8	-3,417.9	-836.9	2,960.6	0.27
10,351.0	87.41	161.77	6,763.4	-3,508.3	-807.9	3,055.5	1.31
10,446.0	88.37	162.12	6,766.9	-3,598.6	-778.5	3,150.4	1.08
10,541.0	88.11	162.39	6,769.8	-3,689.0	-749.5	3,245.3	0.39
10,637.0	88.72	160.01	6,772.4	-3,779.9	-718.6	3,341.3	2.56
10,733.0	88.29	159.92	6,775.0	-3,870.0	-685.7	3,437.2	0.46
10,830.0	87.76	159.48	6,778.3	-3,960.9	-652.1	3,534.2	0.71
10,925.0	88.46	161.46	6,781.4	-4,050.4	-620.4	3,629.1	2.21
11,020.0	88.72	161.68	6,783.8	-4,140.5	-590.3	3,724.1	0.36
11,117.0	88.55	162.03	6,786.1	-4,232.7	-560.1	3,821.0	0.40
11,212.0	87.67	161.77	6,789.2	-4,322.9	-530.6	3,916.0	0.97
11,308.0	87.49	161.86	6,793.3	-4,414.0	-500.7	4,011.9	0.21
11,403.0	87.23	161.51	6,797.6	-4,504.1	-470.9	4,106.8	0.46
11,499.0	88.99	162.39	6,800.8	-4,595.4	-441.2	4,202.7	2.05
11,596.0	88.90	162.74	6,802.6	-4,687.9	-412.1	4,299.6	0.37
11,691.0	88.37	162.03	6,804.9	-4,778.4	-383.4	4,394.6	0.93
11,787.0	87.76	162.30	6,808.1	-4,869.7	-354.0	4,490.5	0.69
11,884.0	87.14	162.21	6,812.4	-4,962.0	-324.4	4,587.4	0.65
11,980.0	86.79	160.45	6,817.5	-5,052.8	-293.8	4,683.3	1.87
12,076.0	86.17	159.66	6,823.4	-5,142.9	-261.1	4,779.1	1.04
12,172.0	86.07	159.34	6,829.9	-5,232.6	-227.5	4,874.8	0.35
12,269.0	86.70	161.24	6,836.0	-5,323.8	-194.9	4,971.6	2.06
12,365.0	86.88	160.80	6,841.4	-5,414.4	-163.7	5,067.5	0.49
12,461.0	87.67	161.59	6,845.9	-5,505.2	-132.8	5,163.3	1.16
12,557.0	86.97	160.72	6,850.4	-5,595.9	-101.8	5,259.2	1.16
12,652.0	88.55	162.12	6,854.1	-5,685.9	-71.6	5,354.2	2.22
12,747.0	86.35	160.01	6,858.4	-5,775.7	-40.8	5,449.1	3.21
12,843.0	85.65	159.75	6,865.1	-5,865.6	-7.8	5,544.8	0.78
12,940.0	87.58	158.17	6,870.8	-5,955.9	26.9	5,641.6	2.57
13,035.0	89.25	159.92	6,873.4	-6,044.6	60.9	5,736.5	2.55
13,131.0	89.16	159.84	6,874.8	-6,134.8	93.9	5,832.4	0.13





**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Pennington South/Anchor/Porter/Lincoln  
**Well:** Lincoln Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Lincoln Unit 1H  
**TVD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**MD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

**Survey**

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
13,227.0	89.08	158.96	6,876.2	-6,224.6	127.7	5,928.4	0.92
13,323.0	88.46	158.25	6,878.3	-6,314.0	162.7	6,024.3	0.98
13,419.0	88.99	161.15	6,880.4	-6,404.0	196.0	6,120.2	3.07
13,515.0	88.64	159.22	6,882.4	-6,494.3	228.5	6,216.2	2.04
13,611.0	91.36	161.86	6,882.4	-6,584.8	260.5	6,312.1	3.95
13,706.0	90.75	161.77	6,880.7	-6,675.0	290.1	6,407.1	0.65
13,801.0	88.64	160.28	6,881.2	-6,764.8	321.0	6,502.1	2.72
13,898.0	87.85	162.03	6,884.1	-6,856.6	352.3	6,599.1	1.98
13,992.0	88.81	160.54	6,886.9	-6,945.6	382.5	6,693.0	1.89
14,083.0	89.96	162.56	6,887.9	-7,031.9	411.3	6,784.0	2.55
14,173.0	90.48	162.82	6,887.5	-7,117.8	438.1	6,874.0	0.65
14,265.0	89.08	162.30	6,887.9	-7,205.6	465.6	6,965.9	1.62
14,355.0	88.64	161.95	6,889.7	-7,291.2	493.2	7,055.9	0.62
14,447.0	88.64	161.59	6,891.8	-7,378.6	522.0	7,147.9	0.39
14,537.0	89.16	160.36	6,893.6	-7,463.6	551.4	7,237.8	1.48
14,627.0	88.72	159.57	6,895.2	-7,548.2	582.2	7,327.8	1.00
14,718.0	89.43	161.33	6,896.7	-7,633.9	612.6	7,418.8	2.09
14,809.0	88.90	161.86	6,898.0	-7,720.3	641.4	7,509.8	0.82
14,900.0	90.31	161.59	6,898.7	-7,806.7	669.9	7,600.8	1.58
14,991.0	89.25	161.15	6,899.0	-7,892.9	699.0	7,691.8	1.26
15,081.0	91.89	161.86	6,898.1	-7,978.2	727.5	7,781.7	3.04
15,177.0	91.10	161.59	6,895.6	-8,069.4	757.6	7,877.7	0.87
15,273.0	91.19	162.03	6,893.7	-8,160.5	787.6	7,973.7	0.47
15,369.0	90.66	162.12	6,892.1	-8,251.9	817.1	8,069.6	0.56
15,465.0	90.13	161.95	6,891.5	-8,343.2	846.7	8,165.6	0.58
15,561.0	90.92	161.51	6,890.6	-8,434.3	876.8	8,261.6	0.94
15,657.0	90.22	160.19	6,889.6	-8,525.0	908.3	8,357.6	1.56
15,754.0	90.75	159.48	6,888.8	-8,616.1	941.7	8,454.6	0.91
15,850.0	90.92	159.57	6,887.4	-8,706.0	975.3	8,550.5	0.20
15,946.0	90.84	160.98	6,885.9	-8,796.3	1,007.7	8,646.5	1.47
16,042.0	90.40	160.63	6,884.9	-8,887.0	1,039.3	8,742.5	0.59
16,138.0	92.33	163.00	6,882.6	-8,978.2	1,069.2	8,838.5	3.18
16,235.0	91.89	162.74	6,879.0	-9,070.8	1,097.8	8,935.3	0.53
16,331.0	91.28	162.30	6,876.4	-9,162.3	1,126.6	9,031.3	0.78
16,427.0	90.84	162.47	6,874.6	-9,253.8	1,155.6	9,127.2	0.49
16,523.0	89.52	160.63	6,874.3	-9,344.9	1,186.0	9,223.2	2.36
16,620.0	91.63	161.24	6,873.3	-9,436.5	1,217.7	9,320.2	2.26
16,716.0	91.45	161.15	6,870.8	-9,527.4	1,248.6	9,416.2	0.21
16,811.0	91.45	160.80	6,868.4	-9,617.2	1,279.6	9,511.1	0.37
16,907.0	91.19	160.28	6,866.1	-9,707.7	1,311.6	9,607.1	0.61
17,004.0	89.87	160.36	6,865.2	-9,799.0	1,344.2	9,704.1	1.36
17,100.0	89.34	160.10	6,865.9	-9,889.3	1,376.7	9,800.1	0.61
17,196.0	89.74	161.24	6,866.7	-9,979.9	1,408.5	9,896.1	1.26
17,293.0	89.69	160.28	6,867.2	-10,071.5	1,440.4	9,993.1	0.99
17,389.0	89.43	160.80	6,867.9	-10,162.0	1,472.4	10,089.1	0.61



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Pennington South/Anchor/Porter/Lincoln  
**Well:** Lincoln Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Lincoln Unit 1H  
**TVD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**MD Reference:** Hall 3: GL 1060' + 13' RKB @ 1073.0usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Oklahoma District

**Survey**

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (*/100usft)
17,485.0	89.16	160.28	6,869.1	-10,252.5	1,504.4	10,185.1	0.61
17,581.0	88.72	160.36	6,870.9	-10,342.9	1,536.7	10,281.0	0.47
17,678.0	90.31	161.95	6,871.7	-10,434.7	1,568.0	10,378.0	2.32
17,774.0	90.71	161.24	6,870.8	-10,525.8	1,598.4	10,474.0	0.85
17,849.0	90.74	162.34	6,869.9	-10,597.0	1,621.8	10,549.0	1.47
17,908.0	90.74	162.34	6,869.1	-10,653.2	1,639.7	10,608.0	0.00

**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,698.0	6,278.0	-226.4	-1,702.5	Sycamore
6,866.0	6,418.7	-292.2	-1,764.8	Middlesex
7,041.0	6,549.3	-403.0	-1,796.1	Burkett
7,104.0	6,588.4	-452.2	-1,799.9	Tully
7,216.0	6,643.0	-549.7	-1,799.0	Hamilton
7,228.0	6,647.4	-560.8	-1,798.7	Marcellus

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