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JUL 27 2015

WV GEOLOGICAL SURVEY  
MORGANTOWN, WV



Leason Run Unit 1H  
Doddridge County WV  
Northing: 14261480.45  
Easting: 1673599.15  
As Drilled



Genie Lighthouse  
16.00, November 25 2014  
Scientific Drilling  
11220 N.W. 10th St.  
Yukon, OK 73099

WELL DETAILS: Leason Run Unit 1H  
Ground Level: 1055.0  
Northing Easting: 14261480.45 1673599.15  
Latitude Longitude: 36° 24' 01.8" N 80° 52' 57.897" W

+N/-S 0.0  
+E/-W 0.0

SITE DETAILS: Hudkins/Leason/Pad  
Site Center: Hudkins 2H  
Site Centre Northing: 14261468.18  
Easting: 1673583.36  
Positional Uncertainty: 2.0  
Convergence: 0.07  
Local North: Grid

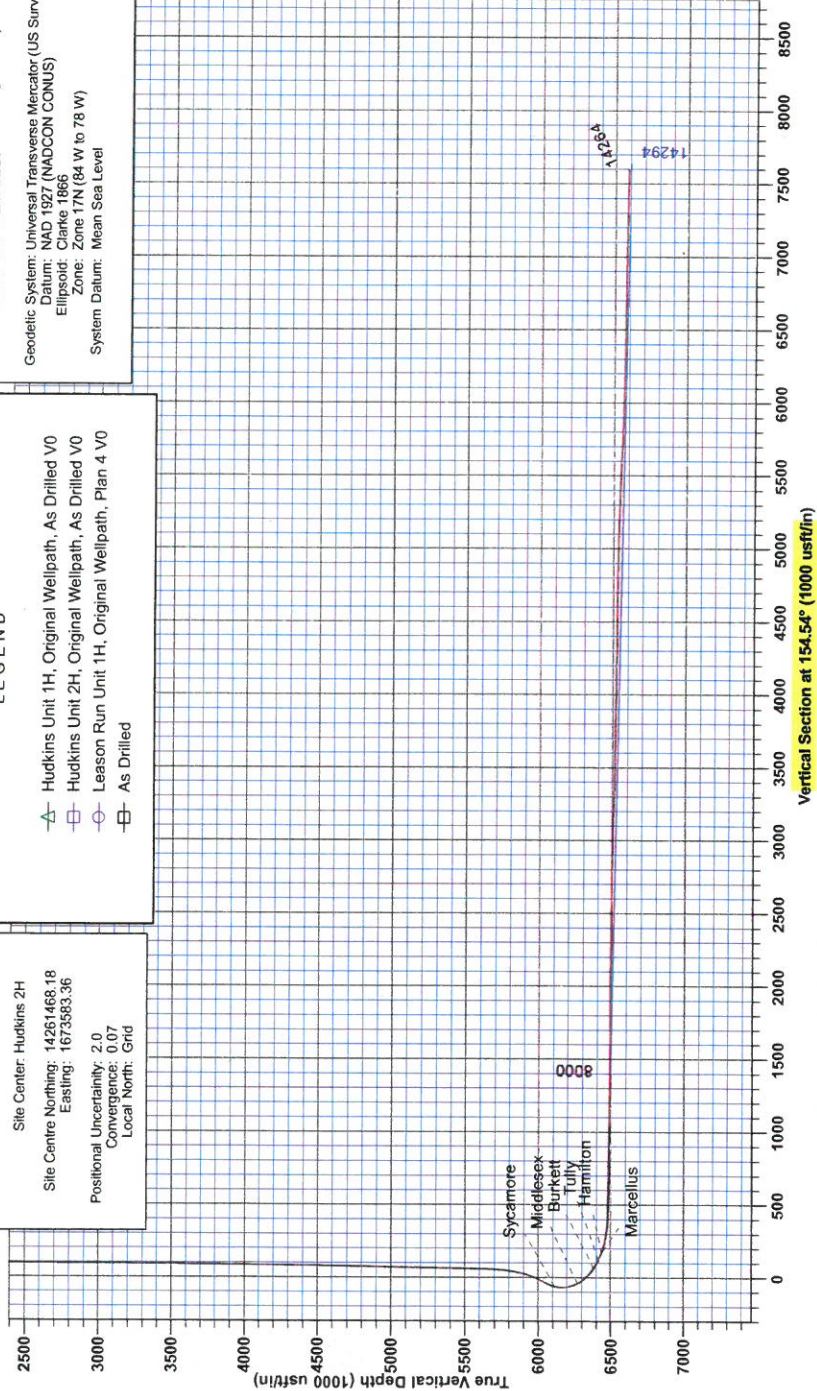
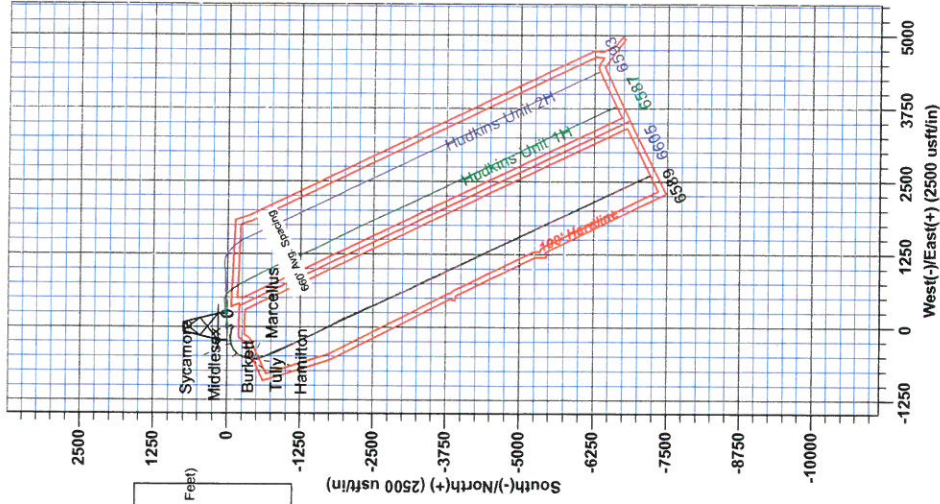
LEGEND

- △ Hudkins Unit 1H, Original Wellpath, As Drilled V0
- Hudkins Unit 2H, Original Wellpath, As Drilled V0
- Leason Run Unit 1H, Original Wellpath, Plan 4 V0
- As Drilled

PROJECT DETAILS: Doddridge 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

Azimuths to Grid North  
True North: -0.07°  
Magnetic North: -8.48°  
Magnetic Field Strength: 32233.28nT  
Dip Angle: 65°  
Declination: 89.204°  
Model: BGGM2014

To convert Magnetic North to Grid, Subtract 8.48°  
To convert True North to Grid, Subtract 0.07°





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MORGANTOWN, WV

## **Antero Resources**

**Doddridge County WV  
Hudkins/Leason/Pad  
Leason Run Unit 1H  
Original Wellpath**

**Design: As Drilled**

## **EOW Completion Report**

**25 November, 2014**





JUL 27 2015



EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Leason Run Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Precision 523: GL 1055' + KB 19' @ 1074.0usft
<b>Site:</b>	Hudkins/Leason/Pad	<b>MD Reference:</b>	Precision 523: GL 1055' + KB 19' @ 1074.0usft
<b>Well:</b>	Leason Run Unit 1H	<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>	Hudkins/Leason/Pad		
<b>Site Position:</b>		<b>Northing:</b>	14,261,468.18 usft
<b>From:</b>	Map	<b>Easting:</b>	1,673,583.36 usft
<b>Position Uncertainty:</b>	2.0 usft	<b>Slot Radius:</b>	13-3/16"
		<b>Latitude:</b>	39° 16' 23.897 N
		<b>Longitude:</b>	80° 52' 58.098 W
		<b>Grid Convergence:</b>	0.07 °

<b>Well</b>	Leason Run Unit 1H, Marcellus		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b> 14,261,480.45 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b> 1,673,599.15 usft
<b>Position Uncertainty</b>	2.0 usft	<b>Wellhead Elevation:</b>	1,074.0 usft
		<b>Ground Level:</b>	1,055.0 usft

<b>Wellbore</b>	Original Wellpath
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	9/9/2014	-8.41	66.85	52,233

<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	154.54

Survey Program	Date	11/25/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
106.0	5,483.0	Survey #6 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
5,538.0	14,264.0	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
106.0	0.18	349.65	106.0	0.2	0.0	-0.2	0.17
131.0	0.17	317.36	131.0	0.2	-0.1	-0.2	0.39
156.0	0.14	284.89	156.0	0.3	-0.1	-0.3	0.37
181.0	0.12	296.26	181.0	0.3	-0.2	-0.3	0.13
206.0	0.09	323.11	206.0	0.3	-0.2	-0.4	0.23
231.0	0.11	272.56	231.0	0.3	-0.2	-0.4	0.35
256.0	0.28	261.52	256.0	0.3	-0.3	-0.4	0.69
281.0	0.30	261.59	281.0	0.3	-0.5	-0.5	0.08
306.0	0.19	280.63	306.0	0.3	-0.6	-0.5	0.54
331.0	0.22	289.60	331.0	0.3	-0.6	-0.6	0.18

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Leason Run Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Precision 523: GL 1055' + KB 19' @ 1074.0usft
<b>Site:</b>	Hudkins/Leason/Pad	<b>MD Reference:</b>	Precision 523: GL 1055' + KB 19' @ 1074.0usft
<b>Well:</b>	Leason Run Unit 1H	<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)		
356.0	0.19	274.41	356.0	0.3	-0.7	-0.6	0.25		
381.0	0.37	279.21	381.0	0.4	-0.8	-0.7	0.73		
406.0	0.40	268.33	406.0	0.4	-1.0	-0.8	0.32		
431.0	0.36	269.37	431.0	0.4	-1.2	-0.8	0.16		
456.0	0.10	275.13	456.0	0.4	-1.3	-0.9	1.04		
481.0	0.04	266.20	481.0	0.4	-1.3	-0.9	0.24		
506.0	0.68	136.21	506.0	0.3	-1.2	-0.8	2.83		
531.0	1.56	138.03	531.0	-0.1	-0.9	-0.3	3.52		
556.0	2.42	143.09	556.0	-0.8	-0.3	0.6	3.51		
581.0	3.53	143.15	580.9	-1.8	0.4	1.8	4.44		
606.0	3.92	144.20	605.9	-3.1	1.4	3.4	1.58		
631.0	4.08	145.96	630.8	-4.6	2.4	5.1	0.81		
656.0	4.23	148.59	655.8	-6.1	3.4	6.9	0.97		
681.0	5.23	156.39	680.7	-7.9	4.3	9.0	4.75		
706.0	5.54	157.18	705.6	-10.1	5.2	11.3	1.27		
731.0	5.63	157.24	730.4	-12.3	6.2	13.8	0.36		
756.0	5.73	157.06	755.3	-14.6	7.1	16.2	0.41		
781.0	5.77	157.18	780.2	-16.9	8.1	18.7	0.17		
806.0	5.84	157.15	805.1	-19.2	9.1	21.3	0.28		
831.0	5.78	157.22	829.9	-21.6	10.1	23.8	0.24		
856.0	6.00	157.24	854.8	-23.9	11.1	26.4	0.88		
881.0	5.99	157.15	879.7	-26.3	12.1	29.0	0.05		
906.0	6.12	156.81	904.5	-28.8	13.1	31.6	0.54		
931.0	6.13	157.15	929.4	-31.2	14.2	34.3	0.15		
956.0	7.37	152.04	954.2	-33.9	15.4	37.2	5.51		
981.0	8.26	149.32	979.0	-36.8	17.1	40.6	3.85		
1,006.0	9.44	148.31	1,003.7	-40.1	19.1	44.4	4.76		
1,031.0	10.65	146.01	1,028.3	-43.8	21.5	48.7	5.10		
1,056.0	11.13	146.57	1,052.9	-47.7	24.1	53.4	1.97		
1,081.0	10.84	151.22	1,077.4	-51.8	26.5	58.2	3.73		
1,106.0	9.93	158.30	1,102.0	-55.8	28.5	62.6	6.26		
1,131.0	9.24	165.21	1,126.6	-59.8	29.8	66.8	5.36		
1,156.0	8.72	171.57	1,151.3	-63.6	30.6	70.6	4.48		
1,181.0	8.56	173.16	1,176.0	-67.3	31.1	74.1	1.15		
1,206.0	7.27	178.89	1,200.8	-70.7	31.3	77.3	6.04		
1,231.0	6.17	184.88	1,225.6	-73.7	31.2	79.9	5.21		
1,256.0	5.55	189.88	1,250.5	-76.2	30.9	82.1	3.21		
1,281.0	5.03	193.96	1,275.4	-78.4	30.4	83.9	2.57		
1,306.0	3.92	201.10	1,300.3	-80.3	29.9	85.3	4.96		
1,331.0	3.51	206.17	1,325.3	-81.8	29.2	86.4	2.10		
1,356.0	3.38	205.80	1,350.2	-83.1	28.6	87.3	0.53		
1,381.0	3.19	208.64	1,375.2	-84.4	27.9	88.2	1.00		
1,406.0	2.60	227.28	1,400.2	-85.4	27.2	88.8	4.41		
1,431.0	2.29	233.19	1,425.1	-86.1	26.3	89.1	1.60		



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<b>Design:</b>	As Drilled	<b>Database:</b>	Oklahoma District

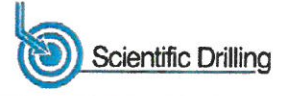
Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,456.0	2.30	242.59	1,450.1	-86.6	25.5	89.2	1.50
1,481.0	2.24	240.56	1,475.1	-87.1	24.6	89.2	0.40
1,506.0	2.23	242.55	1,500.1	-87.6	23.8	89.3	0.31
1,531.0	2.23	240.94	1,525.1	-88.0	22.9	89.3	0.25
1,556.0	2.09	238.31	1,550.0	-88.5	22.1	89.4	0.69
1,581.0	2.12	243.94	1,575.0	-88.9	21.3	89.5	0.84
1,606.0	2.21	243.83	1,600.0	-89.4	20.4	89.5	0.36
1,631.0	2.15	242.04	1,625.0	-89.8	19.6	89.5	0.36
1,656.0	2.16	240.54	1,650.0	-90.2	18.8	89.5	0.23
1,681.0	2.04	236.85	1,675.0	-90.7	18.0	89.6	0.72
1,706.0	2.03	243.03	1,699.9	-91.2	17.2	89.7	0.88
1,731.0	2.05	241.46	1,724.9	-91.6	16.4	89.7	0.24
1,756.0	2.01	239.22	1,749.9	-92.0	15.7	89.8	0.36
1,781.0	1.88	237.45	1,774.9	-92.5	14.9	89.9	0.57
1,806.0	1.87	238.52	1,799.9	-92.9	14.3	90.0	0.15
1,831.0	1.78	231.76	1,824.9	-93.3	13.6	90.1	0.93
1,856.0	1.77	230.99	1,849.9	-93.8	13.0	90.3	0.10
1,881.0	1.64	230.56	1,874.8	-94.3	12.4	90.5	0.52
1,906.0	1.63	236.43	1,899.8	-94.7	11.8	90.6	0.67
1,931.0	1.63	232.84	1,924.8	-95.1	11.3	90.7	0.41
1,956.0	1.65	235.63	1,949.8	-95.6	10.7	90.9	0.33
1,981.0	1.73	236.28	1,974.8	-96.0	10.1	91.0	0.33
2,006.0	1.62	237.61	1,999.8	-96.4	9.5	91.1	0.47
2,031.0	1.60	237.72	2,024.8	-96.7	8.9	91.2	0.08
2,056.0	1.60	236.18	2,049.8	-97.1	8.3	91.2	0.17
2,081.0	1.58	236.97	2,074.8	-97.5	7.7	91.3	0.12
2,106.0	1.73	242.47	2,099.7	-97.9	7.1	91.4	0.87
2,131.0	1.50	237.21	2,124.7	-98.2	6.5	91.5	1.09
2,156.0	1.54	235.09	2,149.7	-98.6	5.9	91.6	0.28
2,181.0	1.46	239.87	2,174.7	-98.9	5.4	91.6	0.59
2,206.0	1.43	241.39	2,199.7	-99.2	4.8	91.7	0.19
2,231.0	1.40	235.88	2,224.7	-99.6	4.3	91.7	0.56
2,256.0	1.36	238.01	2,249.7	-99.9	3.8	91.8	0.26
2,281.0	1.18	238.20	2,274.7	-100.2	3.3	91.9	0.72
2,306.0	1.24	233.52	2,299.7	-100.5	2.9	92.0	0.46
2,331.0	1.16	235.60	2,324.7	-100.8	2.5	92.1	0.36
2,356.0	1.22	239.22	2,349.7	-101.1	2.0	92.1	0.38
2,381.0	1.32	236.16	2,374.7	-101.4	1.6	92.2	0.48
2,406.0	1.28	232.60	2,399.7	-101.7	1.1	92.3	0.36
2,431.0	1.19	237.19	2,424.7	-102.0	0.7	92.4	0.53
2,456.0	1.31	238.00	2,449.7	-102.3	0.2	92.4	0.49
2,481.0	1.18	230.94	2,474.6	-102.6	-0.3	92.5	0.80
2,506.0	0.96	235.32	2,499.6	-102.9	-0.6	92.6	0.94
2,531.0	1.00	242.07	2,524.6	-103.1	-1.0	92.7	0.49
2,556.0	0.89	247.68	2,549.6	-103.3	-1.4	92.7	0.57

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<b>Well:</b>	Leason Run Unit 1H	<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)	
2,581.0	0.84	247.22	2,574.6	-103.4	-1.7	92.7	0.20	
2,606.0	0.72	246.99	2,599.6	-103.6	-2.0	92.6	0.48	
2,631.0	0.77	257.14	2,624.6	-103.7	-2.3	92.6	0.56	
2,656.0	0.68	251.42	2,649.6	-103.7	-2.6	92.5	0.46	
2,681.0	0.70	253.43	2,674.6	-103.8	-2.9	92.5	0.13	
2,706.0	0.70	254.95	2,699.6	-103.9	-3.2	92.4	0.07	
2,731.0	0.52	259.18	2,724.6	-104.0	-3.5	92.4	0.74	
2,756.0	0.70	266.60	2,749.6	-104.0	-3.7	92.3	0.78	
2,781.0	0.59	268.65	2,774.6	-104.0	-4.0	92.2	0.45	
2,806.0	0.53	269.47	2,799.6	-104.0	-4.3	92.1	0.24	
2,831.0	0.61	271.79	2,824.6	-104.0	-4.5	92.0	0.33	
2,856.0	0.58	271.67	2,849.6	-104.0	-4.8	91.9	0.12	
2,881.0	0.64	270.43	2,874.6	-104.0	-5.0	91.7	0.25	
2,906.0	0.60	270.73	2,899.6	-104.0	-5.3	91.6	0.16	
2,931.0	0.67	272.13	2,924.6	-104.0	-5.6	91.5	0.29	
2,956.0	0.66	273.39	2,949.6	-104.0	-5.9	91.4	0.07	
2,981.0	0.63	277.58	2,974.6	-104.0	-6.2	91.2	0.22	
3,006.0	0.56	277.46	2,999.6	-103.9	-6.4	91.1	0.28	
3,031.0	0.56	271.21	3,024.6	-103.9	-6.7	91.0	0.24	
3,056.0	0.43	277.24	3,049.6	-103.9	-6.9	90.9	0.56	
3,081.0	0.49	280.17	3,074.6	-103.9	-7.1	90.7	0.26	
3,106.0	0.44	279.74	3,099.6	-103.8	-7.3	90.6	0.20	
3,131.0	0.46	278.29	3,124.6	-103.8	-7.5	90.5	0.09	
3,156.0	0.44	278.97	3,149.6	-103.8	-7.7	90.4	0.08	
3,181.0	0.41	286.50	3,174.6	-103.7	-7.8	90.3	0.25	
3,206.0	0.48	288.94	3,199.6	-103.7	-8.0	90.2	0.29	
3,231.0	0.41	292.57	3,224.6	-103.6	-8.2	90.0	0.30	
3,256.0	0.37	293.86	3,249.6	-103.5	-8.4	89.9	0.16	
3,281.0	0.37	298.01	3,274.6	-103.5	-8.5	89.8	0.11	
3,306.0	0.30	306.94	3,299.6	-103.4	-8.6	89.6	0.35	
3,331.0	0.37	306.74	3,324.6	-103.3	-8.7	89.5	0.28	
3,356.0	0.36	309.80	3,349.6	-103.2	-8.9	89.4	0.09	
3,381.0	0.47	298.76	3,374.6	-103.1	-9.0	89.2	0.54	
3,406.0	0.35	306.75	3,399.6	-103.0	-9.2	89.1	0.53	
3,431.0	0.39	305.67	3,424.6	-102.9	-9.3	88.9	0.16	
3,456.0	0.56	295.90	3,449.6	-102.8	-9.5	88.7	0.75	
3,481.0	0.33	315.81	3,474.6	-102.7	-9.6	88.6	1.10	
3,506.0	0.34	316.20	3,499.6	-102.6	-9.7	88.4	0.04	
3,531.0	0.54	298.39	3,524.6	-102.5	-9.9	88.3	0.96	
3,556.0	0.54	291.23	3,549.6	-102.4	-10.1	88.1	0.27	
3,581.0	0.39	299.99	3,574.6	-102.3	-10.3	87.9	0.66	
3,606.0	0.41	303.12	3,599.6	-102.2	-10.4	87.8	0.12	
3,631.0	0.44	298.22	3,624.6	-102.1	-10.6	87.6	0.19	
3,656.0	0.48	294.12	3,649.6	-102.0	-10.8	87.5	0.21	



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U.S. GEOLOGICAL SURVEY  
MORGANTOWN, WV

EOW Completion Report

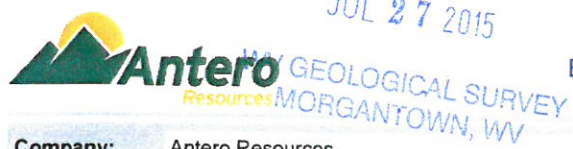


<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Leason Run Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Precision 523: GL 1055' + KB 19' @ 1074.0usft
<b>Site:</b>	Hudkins/Leason/Pad	<b>MD Reference:</b>	Precision 523: GL 1055' + KB 19' @ 1074.0usft
<b>Well:</b>	Leason Run Unit 1H	<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

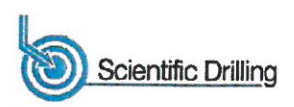
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
3,681.0	0.41	305.16	3,674.6	-101.9	-11.0	87.3	0.44
3,706.0	0.45	299.64	3,699.6	-101.8	-11.1	87.2	0.23
3,731.0	0.35	307.18	3,724.6	-101.7	-11.3	87.0	0.45
3,756.0	0.37	316.38	3,749.6	-101.6	-11.4	86.9	0.24
3,781.0	0.56	298.68	3,774.6	-101.5	-11.5	86.7	0.94
3,806.0	0.51	296.61	3,799.6	-101.4	-11.7	86.5	0.21
3,831.0	0.36	309.94	3,824.6	-101.3	-11.9	86.4	0.72
3,856.0	0.48	308.65	3,849.6	-101.2	-12.0	86.2	0.48
3,881.0	0.46	306.17	3,874.6	-101.1	-12.2	86.0	0.11
3,906.0	0.40	314.44	3,899.6	-101.0	-12.4	85.8	0.34
3,931.0	0.47	304.47	3,924.6	-100.8	-12.5	85.7	0.41
3,956.0	0.52	311.57	3,949.6	-100.7	-12.7	85.5	0.32
3,981.0	0.47	304.43	3,974.6	-100.6	-12.8	85.3	0.32
4,006.0	0.51	323.61	3,999.6	-100.4	-13.0	85.1	0.67
4,031.0	0.41	324.36	4,024.6	-100.3	-13.1	84.9	0.40
4,056.0	0.53	325.76	4,049.6	-100.1	-13.2	84.7	0.48
4,081.0	0.54	320.98	4,074.6	-99.9	-13.4	84.5	0.18
4,106.0	0.46	313.85	4,099.6	-99.7	-13.5	84.2	0.40
4,131.0	0.42	318.05	4,124.6	-99.6	-13.6	84.1	0.21
4,156.0	0.48	316.08	4,149.6	-99.5	-13.8	83.9	0.25
4,181.0	0.45	315.53	4,174.6	-99.3	-13.9	83.7	0.12
4,206.0	0.49	316.94	4,199.6	-99.2	-14.1	83.5	0.17
4,231.0	0.55	312.42	4,224.6	-99.0	-14.2	83.3	0.29
4,256.0	0.54	319.93	4,249.6	-98.8	-14.4	83.1	0.29
4,281.0	0.50	317.14	4,274.6	-98.7	-14.5	82.8	0.19
4,306.0	0.57	317.73	4,299.6	-98.5	-14.7	82.6	0.28
4,331.0	0.77	313.84	4,324.6	-98.3	-14.9	82.3	0.82
4,356.0	0.71	311.82	4,349.6	-98.1	-15.1	82.0	0.26
4,381.0	0.70	310.23	4,374.6	-97.9	-15.4	81.8	0.09
4,406.0	0.78	307.81	4,399.6	-97.7	-15.6	81.5	0.34
4,431.0	0.81	307.01	4,424.6	-97.5	-15.9	81.2	0.13
4,456.0	0.80	312.08	4,449.6	-97.2	-16.2	80.8	0.29
4,481.0	0.83	306.49	4,474.5	-97.0	-16.4	80.5	0.34
4,506.0	0.80	304.02	4,499.5	-96.8	-16.7	80.2	0.18
4,531.0	0.93	307.03	4,524.5	-96.6	-17.0	79.9	0.55
4,556.0	0.87	307.19	4,549.5	-96.3	-17.3	79.5	0.24
4,581.0	0.92	306.98	4,574.5	-96.1	-17.7	79.2	0.20
4,606.0	0.89	307.91	4,599.5	-95.9	-18.0	78.8	0.13
4,631.0	1.04	308.07	4,624.5	-95.6	-18.3	78.5	0.60
4,656.0	1.09	308.32	4,649.5	-95.3	-18.7	78.0	0.20
4,681.0	1.02	307.36	4,674.5	-95.0	-19.0	77.6	0.29
4,706.0	0.99	309.70	4,699.5	-94.8	-19.4	77.2	0.20
4,731.0	1.13	310.91	4,724.5	-94.5	-19.7	76.8	0.57
4,756.0	1.11	310.68	4,749.5	-94.1	-20.1	76.4	0.08

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EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Leason Run Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Precision 523: GL 1055' + KB 19' @ 1074.0usft
<b>Site:</b>	Hudkins/Leason/Pad	<b>MD Reference:</b>	Precision 523: GL 1055' + KB 19' @ 1074.0usft
<b>Well:</b>	Leason Run Unit 1H	<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)
4,781.0	1.06	313.32	4,774.5	-93.8	-20.5	75.9	0.28
4,806.0	1.18	313.14	4,799.5	-93.5	-20.8	75.5	0.48
4,831.0	1.23	310.71	4,824.5	-93.1	-21.2	75.0	0.29
4,856.0	1.28	309.27	4,849.5	-92.8	-21.6	74.5	0.24
4,881.0	1.24	310.75	4,874.5	-92.4	-22.0	74.0	0.21
4,906.0	1.22	311.35	4,899.5	-92.1	-22.4	73.5	0.10
4,931.0	1.22	313.44	4,924.5	-91.7	-22.8	73.0	0.18
4,956.0	1.05	314.26	4,949.5	-91.4	-23.2	72.5	0.68
4,981.0	1.16	315.57	4,974.5	-91.0	-23.5	72.1	0.45
5,006.0	1.17	315.89	4,999.5	-90.7	-23.9	71.6	0.05
5,031.0	1.29	317.30	5,024.4	-90.3	-24.3	71.1	0.49
5,056.0	1.26	319.62	5,049.4	-89.9	-24.6	70.6	0.24
5,081.0	1.28	313.28	5,074.4	-89.5	-25.0	70.0	0.57
5,106.0	1.22	315.88	5,099.4	-89.1	-25.4	69.5	0.33
5,131.0	1.16	320.53	5,124.4	-88.7	-25.7	69.0	0.45
5,156.0	1.19	318.97	5,149.4	-88.3	-26.1	68.5	0.18
5,181.0	1.23	319.77	5,174.4	-87.9	-26.4	68.0	0.17
5,206.0	1.27	325.18	5,199.4	-87.5	-26.8	67.5	0.50
5,231.0	1.30	321.67	5,224.4	-87.0	-27.1	66.9	0.34
5,256.0	1.28	320.47	5,249.4	-86.6	-27.4	66.4	0.13
5,281.0	1.29	321.24	5,274.4	-86.2	-27.8	65.8	0.08
5,306.0	1.28	323.06	5,299.4	-85.7	-28.1	65.3	0.17
5,331.0	1.22	320.37	5,324.4	-85.3	-28.5	64.8	0.34
5,356.0	1.24	324.25	5,349.4	-84.9	-28.8	64.2	0.34
5,381.0	1.39	327.36	5,374.4	-84.4	-29.1	63.7	0.66
5,406.0	1.22	323.31	5,399.4	-83.9	-29.4	63.1	0.77
5,431.0	1.31	322.38	5,424.4	-83.5	-29.8	62.6	0.37
5,456.0	1.19	320.68	5,449.3	-83.0	-30.1	62.0	0.50
5,481.0	1.37	323.34	5,474.3	-82.6	-30.5	61.5	0.76
5,483.0	1.38	323.52	5,476.3	-82.6	-30.5	61.4	0.54
5,538.0	1.28	316.19	5,531.3	-81.6	-31.3	60.2	0.36
5,627.0	1.02	309.41	5,620.3	-80.4	-32.6	58.6	0.33
5,658.0	1.72	296.88	5,651.3	-80.0	-33.2	57.9	2.44
5,688.0	3.23	294.11	5,681.3	-79.4	-34.4	56.9	5.05
5,717.0	4.97	292.48	5,710.2	-78.6	-36.3	55.4	6.01
5,748.0	6.82	291.51	5,741.0	-77.4	-39.3	53.0	5.98
5,766.0	7.37	287.86	5,758.9	-76.7	-41.4	51.5	3.95
5,797.0	9.64	285.64	5,789.5	-75.4	-45.8	48.4	7.40
5,827.0	13.30	286.33	5,818.9	-73.7	-51.5	44.4	12.21
5,855.0	17.32	284.62	5,845.9	-71.8	-58.6	39.6	14.45
5,886.0	21.50	282.67	5,875.2	-69.4	-68.6	33.1	13.64
5,916.0	25.85	280.15	5,902.6	-67.0	-80.4	25.9	14.88
5,945.0	30.08	278.00	5,928.3	-64.9	-93.9	18.2	14.99
5,976.0	34.56	276.50	5,954.4	-62.8	-110.3	9.3	14.68





WV GEOLOGICAL SURVEY  
MORGANTOWN, WV

EOW Completion Report



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Hudkins/Leason/Pad  
**Well:** Leason Run Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Leason Run Unit 1H  
**TVD Reference:** Precision 523: GL 1055' + KB 19' @ 1074.0usft  
**MD Reference:** Precision 523: GL 1055' + KB 19' @ 1074.0usft  
**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)
6,006.0	38.79	276.09	5,978.5	-60.8	-128.1	-0.1	14.12
6,035.0	43.36	274.80	6,000.4	-59.0	-147.1	-9.9	16.03
6,066.0	47.56	271.82	6,022.1	-57.8	-169.1	-20.5	15.18
6,096.0	51.59	270.51	6,041.5	-57.3	-191.9	-30.8	13.84
6,124.0	52.83	270.07	6,058.7	-57.2	-214.1	-40.4	4.60
6,155.0	53.02	265.45	6,077.4	-58.2	-238.8	-50.1	11.91
6,185.0	52.56	258.50	6,095.6	-61.5	-262.4	-57.3	18.51
6,214.0	52.89	253.46	6,113.1	-67.1	-284.8	-61.8	13.87
6,216.0	52.89	253.29	6,114.3	-67.6	-286.3	-62.1	6.91
<b>Sycamore</b>							
6,245.0	52.99	250.78	6,131.8	-74.7	-308.3	-65.1	6.91
6,275.0	53.00	249.69	6,149.9	-82.8	-330.9	-67.5	2.90
6,304.0	52.57	246.00	6,167.4	-91.5	-352.3	-68.8	10.24
6,335.0	51.63	240.75	6,186.5	-102.5	-374.1	-68.3	13.70
6,365.0	50.94	235.60	6,205.2	-114.8	-394.0	-65.7	13.59
6,393.0	50.79	232.06	6,222.9	-127.6	-411.5	-61.7	9.82
6,424.0	50.58	228.11	6,242.6	-143.0	-429.9	-55.7	9.88
6,454.0	51.30	222.94	6,261.5	-159.3	-446.5	-48.1	13.59
6,471.0	52.37	219.58	6,272.0	-169.3	-455.3	-42.8	16.78
<b>Middlesex</b>							
6,483.0	53.18	217.26	6,279.2	-176.8	-461.3	-38.6	16.78
6,514.0	54.50	212.92	6,297.5	-197.3	-475.6	-26.3	12.08
6,544.0	55.46	210.29	6,314.7	-218.2	-488.5	-13.0	7.86
6,572.0	56.57	208.58	6,330.4	-238.4	-499.9	0.4	6.43
6,603.0	58.81	205.27	6,347.0	-261.8	-511.8	16.4	11.56
6,633.0	59.54	201.36	6,362.3	-285.5	-522.0	33.4	11.45
6,662.0	60.74	197.05	6,376.8	-309.2	-530.2	51.2	13.54
6,673.0	61.33	194.98	6,382.1	-318.5	-532.9	58.5	17.33
<b>Burkett</b>							
6,693.0	62.48	191.27	6,391.5	-335.6	-536.9	72.2	17.33
6,723.0	64.85	185.86	6,404.9	-362.2	-540.9	94.5	17.99
6,749.0	67.11	183.81	6,415.4	-385.9	-542.9	115.0	11.28
<b>Tully</b>							
6,751.0	67.28	183.65	6,416.2	-387.7	-543.0	116.6	11.28
6,782.0	68.94	181.89	6,427.8	-416.4	-544.4	142.0	7.51
6,810.0	70.19	179.81	6,437.6	-442.7	-544.8	165.5	8.28
<b>Hamilton</b>							
6,812.0	70.28	179.66	6,438.2	-444.5	-544.8	167.2	8.28
6,831.0	71.99	176.96	6,444.4	-462.5	-544.2	183.6	16.19
<b>Marcellus</b>							
6,841.0	72.91	175.56	6,447.4	-472.0	-543.6	192.5	16.19
6,872.0	75.94	170.88	6,455.7	-501.7	-540.1	220.8	17.52
6,902.0	78.29	168.42	6,462.4	-530.4	-534.8	249.0	11.19
6,931.0	80.09	166.83	6,467.8	-558.3	-528.7	276.8	8.22
6,962.0	81.93	164.55	6,472.7	-587.9	-521.1	306.8	9.38



JUL 27 2015

WV GEOLOGICAL SURVEY  
RESOURCES  
MORGANTOWN, WV

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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	V. Sec (usft)	DLeg (°/100usft)
7,030.0	86.70	156.81	6,479.4	-651.7	-498.8	374.0	13.32
7,057.0	87.11	157.37	6,480.9	-676.5	-488.3	400.9	2.57
7,147.0	89.36	161.36	6,483.7	-760.7	-456.6	490.6	5.09
7,237.0	88.69	157.14	6,485.2	-844.8	-424.7	580.2	4.75
7,326.0	88.89	156.07	6,487.1	-926.5	-389.4	669.1	1.22
7,416.0	89.90	155.66	6,488.0	-1,008.6	-352.6	759.1	1.21
7,506.0	89.40	153.60	6,488.6	-1,089.9	-314.0	849.1	2.36
7,596.0	88.75	153.07	6,490.0	-1,170.3	-273.6	939.1	0.93
7,685.0	90.87	152.42	6,490.3	-1,249.5	-232.9	1,028.0	2.49
7,775.0	89.53	153.78	6,490.0	-1,329.7	-192.1	1,118.0	2.12
7,864.0	89.70	154.01	6,490.6	-1,409.6	-153.0	1,207.0	0.32
7,954.0	89.30	154.52	6,491.4	-1,490.7	-113.9	1,297.0	0.72
8,043.0	89.20	153.16	6,492.6	-1,570.6	-74.7	1,386.0	1.53
8,133.0	90.30	153.99	6,492.9	-1,651.2	-34.6	1,475.9	1.53
8,222.0	88.66	151.37	6,493.8	-1,730.2	6.2	1,564.9	3.47
8,312.0	89.20	151.79	6,495.4	-1,809.4	49.0	1,654.7	0.76
8,402.0	91.38	153.50	6,495.0	-1,889.3	90.4	1,744.7	3.08
8,491.0	91.31	156.05	6,492.9	-1,969.8	128.3	1,833.7	2.87
8,581.0	90.07	155.72	6,491.8	-2,051.9	165.1	1,923.6	1.43
8,670.0	89.56	155.95	6,492.1	-2,133.1	201.5	2,012.6	0.63
8,765.0	88.66	154.57	6,493.6	-2,219.4	241.3	2,107.6	1.73
8,860.0	89.80	156.37	6,494.8	-2,305.8	280.7	2,202.5	2.24
8,955.0	88.86	154.64	6,496.0	-2,392.2	320.1	2,297.5	2.07
9,049.0	89.53	155.57	6,497.3	-2,477.5	359.6	2,391.5	1.22
9,144.0	90.07	154.24	6,497.6	-2,563.5	399.9	2,486.5	1.51
9,239.0	89.90	156.12	6,497.6	-2,649.8	439.8	2,581.5	1.99
9,334.0	89.13	155.31	6,498.4	-2,736.3	478.9	2,676.5	1.18
9,429.0	89.13	154.50	6,499.9	-2,822.4	519.2	2,771.5	0.85
9,523.0	88.76	155.71	6,501.6	-2,907.6	558.7	2,865.4	1.35
9,618.0	88.89	155.47	6,503.6	-2,994.1	598.0	2,960.4	0.29
9,708.0	89.33	154.83	6,505.0	-3,075.8	635.8	3,050.4	0.86
9,797.0	87.89	154.14	6,507.1	-3,156.1	674.1	3,139.3	1.79
9,887.0	87.75	155.46	6,510.5	-3,237.4	712.4	3,229.3	1.47
9,977.0	87.76	155.72	6,514.1	-3,319.3	749.6	3,319.2	0.29
10,066.0	89.93	155.09	6,515.9	-3,400.2	786.6	3,408.2	2.54
10,156.0	89.60	154.82	6,516.2	-3,481.8	824.7	3,498.2	0.47
10,245.0	89.20	153.59	6,517.2	-3,561.9	863.4	3,587.1	1.45
10,335.0	89.33	154.09	6,518.3	-3,642.7	903.1	3,677.1	0.57
10,424.0	89.80	154.70	6,519.0	-3,722.9	941.6	3,766.1	0.87
10,514.0	88.76	153.67	6,520.1	-3,803.9	980.8	3,856.1	1.63
10,603.0	89.10	154.43	6,521.8	-3,883.9	1,019.7	3,945.1	0.94
10,693.0	89.43	154.82	6,522.9	-3,965.2	1,058.3	4,035.1	0.57
10,783.0	89.97	154.31	6,523.4	-4,046.5	1,096.9	4,125.1	0.83
10,872.0	88.62	152.11	6,524.5	-4,126.0	1,137.0	4,214.1	2.90



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GEOLOGICAL SURVEY  
MORGANTOWN, WV

EOW Completion Report



**Company:** Antero Resources  
**Project:** Doddridge County WV  
**Site:** Hudkins/Leason/Pad  
**Well:** Leason Run Unit 1H  
**Wellbore:** Original Wellpath  
**Design:** As Drilled

**Local Co-ordinate Reference:** Well Leason Run Unit 1H  
**TVD Reference:** Precision 523: GL 1055' + KB 19' @ 1074.0usft  
**MD Reference:** Precision 523: GL 1055' + KB 19' @ 1074.0usft  
**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)
10,962.0	88.53	154.21	6,526.7	-4,206.2	1,177.6	4,304.0	2.33
11,051.0	89.87	154.90	6,528.0	-4,286.6	1,215.9	4,393.0	1.69
11,141.0	90.64	153.73	6,527.6	-4,367.7	1,254.9	4,483.0	1.56
11,230.0	90.40	154.75	6,526.8	-4,447.8	1,293.6	4,572.0	1.18
11,320.0	89.40	155.04	6,526.9	-4,529.3	1,331.7	4,662.0	1.16
11,409.0	88.96	154.10	6,528.2	-4,609.7	1,370.0	4,751.0	1.17
11,499.0	89.13	155.11	6,529.7	-4,691.0	1,408.6	4,840.9	1.14
11,588.0	89.73	156.08	6,530.6	-4,772.0	1,445.3	4,929.9	1.28
11,678.0	89.16	153.93	6,531.5	-4,853.6	1,483.3	5,019.9	2.47
11,768.0	87.76	154.10	6,533.9	-4,934.5	1,522.8	5,109.9	1.57
11,858.0	88.03	154.56	6,537.2	-5,015.5	1,561.7	5,199.8	0.59
11,947.0	88.06	154.43	6,540.2	-5,095.8	1,600.0	5,288.8	0.15
12,037.0	88.32	153.91	6,543.1	-5,176.8	1,639.2	5,378.7	0.65
12,127.0	87.95	155.17	6,546.0	-5,258.0	1,677.9	5,468.7	1.46
12,216.0	87.82	154.69	6,549.3	-5,338.6	1,715.6	5,557.6	0.56
12,306.0	87.28	156.00	6,553.1	-5,420.3	1,753.1	5,647.5	1.57
12,395.0	87.19	156.07	6,557.4	-5,501.5	1,789.2	5,736.4	0.13
12,485.0	88.35	154.98	6,560.9	-5,583.4	1,826.4	5,826.3	1.77
12,575.0	88.33	154.34	6,563.5	-5,664.7	1,864.9	5,916.2	0.71
12,664.0	88.42	153.45	6,566.1	-5,744.6	1,904.1	6,005.2	1.00
12,754.0	88.76	153.18	6,568.3	-5,824.9	1,944.5	6,095.2	0.48
12,843.0	88.93	153.91	6,570.1	-5,904.6	1,984.1	6,184.1	0.84
12,933.0	89.23	152.35	6,571.5	-5,984.9	2,024.8	6,274.1	1.76
13,022.0	89.16	154.47	6,572.8	-6,064.5	2,064.6	6,363.1	2.38
13,112.0	88.93	153.57	6,574.3	-6,145.3	2,104.1	6,453.0	1.03
13,201.0	89.34	156.31	6,575.6	-6,225.9	2,141.7	6,542.0	3.11
13,291.0	89.60	156.15	6,576.4	-6,308.3	2,178.0	6,632.0	0.34
13,380.0	89.66	156.01	6,577.0	-6,389.7	2,214.1	6,720.9	0.17
13,470.0	89.60	155.22	6,577.6	-6,471.6	2,251.3	6,810.9	0.88
13,560.0	89.90	154.04	6,578.0	-6,553.0	2,289.8	6,900.9	1.35
13,649.0	88.92	154.65	6,578.9	-6,633.2	2,328.4	6,989.9	1.30
13,739.0	88.49	155.63	6,580.9	-6,714.8	2,366.2	7,079.9	1.19
13,828.0	88.69	155.04	6,583.1	-6,795.7	2,403.3	7,168.8	0.70
13,918.0	89.03	153.91	6,584.9	-6,876.9	2,442.1	7,258.8	1.31
14,007.0	88.93	153.80	6,586.5	-6,956.7	2,481.3	7,347.8	0.17
14,097.0	89.19	153.42	6,588.0	-7,037.4	2,521.3	7,437.8	0.51
14,187.0	89.83	153.03	6,588.8	-7,117.7	2,561.8	7,527.8	0.83
14,205.0	90.03	153.38	6,588.8	-7,133.8	2,569.9	7,545.7	2.24
14,264.0	90.03	153.38	6,588.7	-7,186.5	2,596.4	7,604.7	0.00

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**Design Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,216.0	6,114.3	-67.6	-286.3	Sycamore
6,471.0	6,272.0	-169.3	-455.3	Middlesex
6,673.0	6,382.1	-318.5	-532.9	Burkett
6,749.0	6,415.4	-385.9	-542.9	Tully
6,810.0	6,437.6	-442.7	-544.8	Hamilton
6,831.0	6,444.4	-462.5	-544.2	Marcellus

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

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