


  
**Antero Resources**  
 Caswell Unit 1H  
 Doddridge County WV  
 Northing: 14251293.88  
 Easting: 1762622.60  
 As Drilled

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 MAY 26 2015  
 WV Department  
 Environmental Protection

06/05/2015



# Antero Resources

Doddridge County WV  
Ruth/Walter/Caswell/Arters  
Caswell Unit 1H  
Original Wellpath

Design: As Drilled

## EOW Completion Report

05 March, 2014

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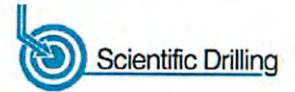


**Scientific Drilling**

06/05/2015



EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Caswell Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Caswell 1H 1050 GL + 25 KB @ 1075.0usft
<b>Site:</b>	Ruth/Walter/Caswell/Arters	<b>MD Reference:</b>	Caswell 1H 1050 GL + 25 KB @ 1075.0usft
<b>Well:</b>	Caswell 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>	Ruth/Walter/Caswell/Arters, Center is Ruth Unit 1				
<b>Site Position:</b>	<b>Northing:</b>	14,251,337.29 usft	<b>Latitude:</b>	39° 14' 41.054 N	
<b>From:</b> Map	<b>Easting:</b>	1,762,689.77 usft	<b>Longitude:</b>	80° 34' 5.240 W	
<b>Position Uncertainty:</b>	2.0 usft	<b>Slot Radius:</b>	13-3/16"	<b>Grid Convergence:</b>	0.27 °

<b>Well</b>	Caswell Unit 1H, Marcellus					
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>	14,251,293.88 usft	<b>Latitude:</b>	39° 14' 40.628 N
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>	1,762,622.60 usft	<b>Longitude:</b>	80° 34' 6.097 W
<b>Position Uncertainty</b>	2.0 usft	<b>Wellhead Elevation:</b>	1,075.0 usft	<b>Ground Level:</b>	1,050.0 usft	

<b>Wellbore</b>	Original Wellpath
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/22/2013	-8.59	66.81	52,326

<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	343.15

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<b>Survey Program</b>	<b>Date</b>	3/5/2014			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
112.0	6,768.0	Survey #6 Final Gyro (Original Wellpath)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper	
6,803.0	17,677.0	Survey #7 MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

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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	0.37	317.20	112.0	0.3	-0.2	0.3	0.33
212.0	0.08	21.22	212.0	0.6	-0.4	0.7	0.34
312.0	0.10	46.14	312.0	0.7	-0.4	0.8	0.04
412.0	0.15	10.34	412.0	0.9	-0.3	0.9	0.09
512.0	0.13	57.21	512.0	1.1	-0.1	1.1	0.11
612.0	0.19	78.65	612.0	1.2	0.1	1.1	0.08
712.0	0.22	76.96	712.0	1.2	0.5	1.1	0.03
812.0	0.20	62.69	812.0	1.4	0.8	1.1	0.06
912.0	0.15	84.65	912.0	1.5	1.1	1.1	0.08
1,012.0	0.15	107.72	1,012.0	1.4	1.3	1.0	0.06



EOW Completion Report



<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Caswell Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Caswell 1H 1050 GL + 25 KB @ 1075.0usft
<b>Site:</b>	Ruth/Walter/Caswell/Arters	<b>MD Reference:</b>	Caswell 1H 1050 GL + 25 KB @ 1075.0usft
<b>Well:</b>	Caswell 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)	
1,112.0	0.38	119.14	1,112.0	1.2	1.8	0.7	0.23	
1,212.0	0.45	115.79	1,212.0	0.9	2.4	0.2	0.07	
1,312.0	0.44	107.28	1,312.0	0.6	3.1	-0.3	0.07	
1,412.0	0.43	92.64	1,412.0	0.5	3.9	-0.7	0.11	
1,512.0	0.34	96.06	1,512.0	0.4	4.5	-0.9	0.09	
1,612.0	0.37	114.32	1,612.0	0.3	5.1	-1.2	0.12	
1,712.0	0.45	98.78	1,712.0	0.1	5.8	-1.6	0.14	
1,812.0	0.41	110.19	1,812.0	-0.1	6.5	-2.0	0.09	
1,912.0	0.40	123.31	1,912.0	-0.4	7.2	-2.5	0.09	
2,012.0	0.50	114.79	2,012.0	-0.8	7.8	-3.0	0.12	
2,112.0	0.53	102.56	2,112.0	-1.1	8.7	-3.6	0.11	
2,212.0	0.56	88.81	2,212.0	-1.2	9.6	-3.9	0.13	
2,312.0	0.33	114.17	2,312.0	-1.3	10.4	-4.2	0.30	
2,412.0	0.57	96.86	2,412.0	-1.5	11.1	-4.6	0.27	
2,512.0	0.37	97.99	2,512.0	-1.6	12.0	-5.0	0.20	
2,612.0	0.46	125.64	2,612.0	-1.8	12.6	-5.4	0.22	
2,712.0	0.56	120.54	2,711.9	-2.3	13.3	-6.1	0.11	
2,812.0	0.37	109.64	2,811.9	-2.7	14.1	-6.6	0.21	
2,912.0	0.45	118.26	2,911.9	-3.0	14.7	-7.1	0.10	
3,012.0	0.43	81.22	3,011.9	-3.1	15.4	-7.4	0.28	
3,112.0	0.42	126.39	3,111.9	-3.3	16.1	-7.8	0.33	
3,212.0	0.38	141.58	3,211.9	-3.7	16.6	-8.4	0.11	
3,312.0	0.28	100.34	3,311.9	-4.0	17.1	-8.8	0.25	
3,412.0	0.43	133.14	3,411.9	-4.3	17.6	-9.2	0.25	
3,512.0	0.18	106.12	3,511.9	-4.6	18.0	-9.7	0.28	
3,612.0	0.27	142.66	3,611.9	-4.9	18.3	-10.0	0.16	
3,712.0	0.28	132.54	3,711.9	-5.2	18.6	-10.4	0.05	
3,812.0	0.19	136.11	3,811.9	-5.5	18.9	-10.8	0.09	
3,912.0	0.30	145.13	3,911.9	-5.8	19.2	-11.2	0.12	
4,012.0	0.43	122.30	4,011.9	-6.3	19.6	-11.7	0.19	
4,112.0	0.47	96.16	4,111.9	-6.5	20.4	-12.1	0.21	
4,212.0	0.46	107.00	4,211.9	-6.7	21.1	-12.5	0.09	
4,312.0	0.49	98.13	4,311.9	-6.8	22.0	-12.9	0.08	
4,412.0	0.50	91.78	4,411.9	-6.9	22.8	-13.2	0.06	
4,512.0	0.68	86.59	4,511.9	-6.9	23.8	-13.5	0.19	
4,612.0	0.65	90.56	4,611.9	-6.9	25.0	-13.8	0.05	
4,712.0	2.24	301.02	4,711.9	-5.9	23.9	-12.5	2.82	
4,812.0	4.82	266.90	4,811.7	-5.1	18.0	-10.1	3.22	
4,912.0	8.02	250.60	4,911.1	-7.6	7.2	-9.4	3.65	
5,012.0	11.53	247.38	5,009.6	-13.8	-8.6	-10.7	3.55	
5,112.0	14.90	236.77	5,106.9	-24.7	-28.6	-15.4	4.14	
5,212.0	16.57	246.13	5,203.2	-37.5	-52.4	-20.7	3.03	
5,312.0	19.17	252.67	5,298.4	-48.2	-81.1	-22.6	3.28	
5,412.0	21.20	255.56	5,392.2	-57.6	-114.3	-22.0	2.26	

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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)		
5,512.0	22.08	255.45	5,485.2	-66.8	-150.0	-20.5	0.88		
5,612.0	23.82	254.54	5,577.3	-76.9	-187.6	-19.2	1.78		
5,712.0	24.96	254.72	5,668.3	-87.9	-227.4	-18.2	1.14		
5,812.0	25.01	254.22	5,759.0	-99.2	-268.1	-17.2	0.22		
5,912.0	25.15	253.54	5,849.6	-110.9	-308.9	-16.6	0.32		
6,012.0	25.67	253.50	5,939.9	-123.1	-350.0	-16.4	0.52		
6,112.0	25.61	253.62	6,030.0	-135.3	-391.5	-16.1	0.08		
6,212.0	25.73	254.24	6,120.2	-147.3	-433.1	-15.5	0.29		
6,312.0	26.02	254.78	6,210.1	-159.0	-475.2	-14.4	0.37		
6,412.0	26.73	251.60	6,299.7	-171.9	-517.7	-14.4	1.58		
6,512.0	26.86	248.28	6,389.0	-187.3	-560.0	-16.9	1.50		
6,612.0	27.00	247.86	6,478.2	-204.2	-602.0	-20.9	0.24		
6,712.0	26.74	246.87	6,567.4	-221.6	-643.7	-25.5	0.52		
6,768.0	26.95	246.44	6,617.3	-231.6	-667.0	-28.4	0.51		
6,803.0	26.61	246.81	6,648.6	-237.9	-681.4	-30.2	1.08		
6,835.0	26.88	246.54	6,677.2	-243.6	-694.7	-31.8	0.93		
6,898.0	27.48	250.50	6,733.2	-254.1	-721.4	-34.1	3.02		
6,929.0	29.62	256.05	6,760.4	-258.4	-735.6	-34.0	10.99		
6,960.0	31.61	260.08	6,787.1	-261.6	-751.1	-32.7	9.22		
6,981.0	33.07	263.13	6,804.9	-263.2	-762.2	-31.0	10.43		
<b>Middlesex</b>									
6,992.0	33.86	264.64	6,814.0	-263.9	-768.2	-29.9	10.43		
7,023.0	36.65	269.19	6,839.3	-264.8	-786.1	-25.6	12.36		
7,055.0	39.40	272.46	6,864.6	-264.5	-805.8	-19.6	10.65		
7,086.0	41.88	276.69	6,888.1	-262.9	-825.9	-12.2	1.95		
7,117.0	43.64	281.76	6,910.9	-259.5	-846.6	-3.0	12.47		
7,149.0	44.53	285.71	6,933.8	-254.2	-868.2	8.4	9.03		
7,174.0	45.26	289.72	6,951.6	-248.8	-885.0	18.4	11.69		
<b>Burkett</b>									
7,180.0	45.45	290.67	6,955.8	-247.4	-889.0	11.0	11.69		
7,212.0	46.29	294.02	6,978.1	-238.6	-910.3	35.5	7.96		
<b>Tully</b>									
7,243.0	48.82	296.73	6,999.0	-228.8	-930.9	50.8	10.40		
7,274.0	51.34	299.07	7,018.9	-217.7	-951.9	67.6	9.98		
7,306.0	54.49	301.99	7,038.2	-204.7	-973.9	86.4	12.24		
7,337.0	57.45	303.60	7,055.5	-190.8	-995.5	106.0	10.47		
7,368.0	61.16	304.45	7,071.3	-175.9	-1,017.6	126.6	12.20		
7,400.0	64.65	306.92	7,085.9	-159.3	-1,040.7	149.2	12.89		
7,431.0	68.25	309.06	7,098.3	-141.8	-1,063.1	172.5	13.22		
7,462.0	71.52	311.20	7,109.0	-123.0	-1,085.4	196.9	12.38		
7,494.0	74.04	314.65	7,118.4	-102.2	-1,107.7	223.3	12.96		
7,519.0	75.09	317.77	7,125.1	-84.8	-1,124.4	244.8	12.73		
<b>Marcellus</b>									
7,525.0	75.35	318.51	7,126.6	-80.5	-1,128.3	250.0	12.73		
7,557.0	76.09	322.31	7,134.5	-56.6	-1,148.0	278.6	11.74		

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Survey							
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,588.0	77.30	326.53	7,141.6	-32.1	-1,165.6	307.2	13.81
7,619.0	79.64	330.08	7,147.8	-6.2	-1,181.5	336.5	13.52
7,651.0	82.05	333.03	7,152.9	21.6	-1,196.6	367.5	11.81
7,682.0	84.21	336.46	7,156.6	49.4	-1,209.7	397.9	13.01
7,695.0	84.91	337.58	7,157.9	61.3	-1,214.8	410.8	10.13
7,789.0	92.07	343.14	7,160.4	149.7	-1,246.3	504.5	9.64
7,883.0	89.43	343.75	7,159.1	239.8	-1,273.1	598.5	2.88
7,977.0	90.47	344.75	7,159.2	330.3	-1,298.6	692.5	1.53
8,071.0	89.87	344.36	7,158.9	420.9	-1,323.6	786.5	0.76
8,165.0	88.99	343.51	7,159.9	511.2	-1,349.6	880.5	1.30
8,260.0	90.44	344.40	7,160.3	602.5	-1,375.9	975.5	1.79
8,354.0	90.57	344.20	7,159.5	693.0	-1,401.3	1,069.4	0.25
8,448.0	90.13	343.98	7,158.9	783.4	-1,427.1	1,163.4	0.52
8,542.0	89.53	343.57	7,159.2	873.6	-1,453.4	1,257.4	0.77
8,637.0	89.23	343.19	7,160.2	964.7	-1,480.5	1,352.4	0.51
8,731.0	90.97	346.12	7,160.1	1,055.3	-1,505.4	1,446.4	3.63
8,825.0	90.30	345.12	7,159.0	1,146.3	-1,528.7	1,540.3	1.28
8,919.0	89.60	342.69	7,159.1	1,236.7	-1,554.8	1,634.2	2.69
9,013.0	91.27	342.22	7,158.4	1,326.3	-1,583.1	1,728.2	1.85
9,107.0	88.90	341.56	7,158.3	1,415.6	-1,612.3	1,822.2	2.62
9,201.0	90.84	342.25	7,158.5	1,505.0	-1,641.5	1,916.2	2.19
9,296.0	90.44	341.59	7,157.4	1,595.3	-1,671.0	2,011.1	0.81
9,390.0	90.04	341.21	7,157.0	1,684.3	-1,701.0	2,105.1	0.59
9,484.0	90.33	341.65	7,156.7	1,773.5	-1,730.9	2,199.1	0.56
9,578.0	90.84	343.58	7,155.8	1,863.2	-1,759.0	2,293.0	2.12
9,672.0	91.58	344.41	7,153.8	1,953.5	-1,784.9	2,387.0	1.18
9,766.0	90.91	343.84	7,151.7	2,043.9	-1,810.6	2,481.0	0.94
9,861.0	91.28	344.45	7,149.9	2,135.2	-1,836.6	2,575.9	0.75
9,955.0	89.10	345.48	7,149.6	2,226.0	-1,861.0	2,669.9	2.56
10,048.0	90.17	347.71	7,150.2	2,316.5	-1,882.5	2,762.7	2.66
10,142.0	88.86	346.85	7,151.0	2,408.2	-1,903.2	2,856.5	1.67
10,236.0	86.93	343.91	7,154.4	2,499.0	-1,926.9	2,950.3	3.74
10,331.0	88.11	341.91	7,158.6	2,589.8	-1,954.8	3,045.2	2.44
10,425.0	90.77	341.03	7,159.5	2,678.9	-1,984.7	3,139.2	2.98
10,519.0	90.07	341.25	7,158.8	2,767.8	-2,015.1	3,233.1	0.78
10,613.0	89.20	343.57	7,159.4	2,857.4	-2,043.5	3,327.1	2.64
10,707.0	90.54	344.21	7,159.6	2,947.7	-2,069.6	3,421.1	1.58
10,800.0	88.35	340.75	7,160.5	3,036.4	-2,097.6	3,514.0	4.40
10,892.0	88.96	341.15	7,162.7	3,123.3	-2,127.6	3,605.9	0.79
10,985.0	88.42	339.95	7,164.8	3,211.0	-2,158.5	3,698.8	1.41
11,077.0	89.53	341.94	7,166.4	3,297.9	-2,188.6	3,790.7	2.48
11,169.0	90.13	343.35	7,166.7	3,385.7	-2,216.0	3,882.7	1.67
11,261.0	89.63	341.23	7,166.9	3,473.4	-2,244.0	3,974.7	2.37
11,354.0	91.31	344.38	7,166.1	3,562.2	-2,271.5	4,067.7	3.84

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WV Department of  
Environmental Protection

<b>Company:</b>	Antero Resources	<b>Local Co-ordinate Reference:</b>	Well Caswell Unit 1H
<b>Project:</b>	Doddridge County WV	<b>TVD Reference:</b>	Caswell 1H 1050 GL + 25 KB @ 1075.0usft
<b>Site:</b>	Ruth/Walter/Caswell/Arters	<b>MD Reference:</b>	Caswell 1H 1050 GL + 25 KB @ 1075.0usft
<b>Well:</b>	Caswell 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)	
11,447.0	90.44	345.25	7,164.7	3,651.9	-2,295.8	4,160.6	1.32	
11,539.0	88.39	346.91	7,165.7	3,741.2	-2,318.0	4,252.5	2.87	
11,632.0	89.87	343.77	7,167.1	3,831.2	-2,341.5	4,345.4	3.73	
11,725.0	89.46	344.81	7,167.6	3,920.7	-2,366.7	4,438.4	1.20	
11,817.0	90.03	343.89	7,168.0	4,009.3	-2,391.5	4,530.4	1.18	
11,911.0	88.05	341.80	7,169.6	4,099.1	-2,419.2	4,624.3	3.06	
12,006.0	89.87	344.35	7,171.3	4,189.9	-2,446.9	4,719.3	3.30	
12,100.0	90.00	341.10	7,171.4	4,279.7	-2,474.8	4,813.3	3.46	
12,194.0	88.56	339.60	7,172.6	4,368.2	-2,506.4	4,907.2	2.21	
12,288.0	90.00	343.89	7,173.8	4,457.4	-2,535.8	5,001.1	4.81	
12,383.0	88.86	342.53	7,174.7	4,548.4	-2,563.2	5,096.1	1.87	
12,477.0	88.36	342.26	7,177.0	4,638.0	-2,591.7	5,190.1	0.60	
12,571.0	90.40	344.54	7,178.0	4,728.0	-2,618.5	5,284.1	3.25	
12,665.0	89.90	343.20	7,177.8	4,818.3	-2,644.6	5,378.0	1.52	
12,759.0	88.22	342.12	7,179.3	4,908.0	-2,672.6	5,472.0	2.12	
12,853.0	89.60	342.44	7,181.1	4,997.6	-2,701.2	5,566.0	1.51	
12,948.0	89.03	340.48	7,182.3	5,087.6	-2,731.5	5,660.9	2.15	
13,042.0	90.24	342.75	7,182.9	5,176.8	-2,761.1	5,754.9	2.74	
13,136.0	89.56	342.88	7,183.0	5,266.6	-2,788.9	5,848.9	0.74	
13,230.0	90.20	343.72	7,183.2	5,356.6	-2,815.9	5,942.9	1.12	
13,324.0	90.13	346.04	7,182.9	5,447.4	-2,840.4	6,036.8	2.47	
13,418.0	88.69	344.34	7,183.9	5,538.2	-2,864.4	6,130.8	2.37	
13,513.0	87.95	345.95	7,186.7	5,630.0	-2,888.8	6,225.7	1.86	
13,607.0	89.46	344.58	7,188.8	5,720.9	-2,912.7	6,319.6	2.17	
13,701.0	88.22	344.35	7,190.7	5,811.5	-2,937.8	6,413.5	1.34	
13,795.0	89.00	341.63	7,193.0	5,901.3	-2,965.3	6,507.5	3.01	
13,889.0	88.19	340.53	7,195.3	5,990.2	-2,995.8	6,601.4	1.45	
13,983.0	89.63	344.09	7,197.1	6,079.7	-3,024.3	6,695.4	4.08	
14,077.0	89.09	340.54	7,198.1	6,169.3	-3,052.9	6,789.3	3.82	
14,171.0	88.86	342.08	7,199.8	6,258.3	-3,083.0	6,883.3	1.66	
14,265.0	88.63	339.06	7,201.9	6,346.9	-3,114.3	6,977.1	3.22	
14,360.0	88.83	339.66	7,204.0	6,435.8	-3,147.7	7,071.9	0.67	
14,454.0	89.70	342.98	7,205.2	6,524.8	-3,177.8	7,165.8	3.65	
14,548.0	88.69	342.52	7,206.5	6,614.6	-3,205.7	7,259.8	1.18	
14,642.0	89.56	347.24	7,208.0	6,705.3	-3,230.2	7,353.7	5.11	
14,736.0	89.43	347.52	7,208.8	6,797.0	-3,250.8	7,447.5	0.33	
14,830.0	88.39	344.79	7,210.6	6,888.2	-3,273.3	7,541.3	3.11	
14,925.0	88.62	345.04	7,213.1	6,979.9	-3,298.0	7,636.2	0.36	
15,019.0	88.99	346.32	7,215.0	7,071.0	-3,321.2	7,730.1	1.42	
15,113.0	88.42	342.49	7,217.1	7,161.5	-3,346.5	7,824.1	4.12	
15,207.0	88.12	341.09	7,220.0	7,250.7	-3,375.8	7,918.0	1.52	
15,301.0	89.60	341.99	7,221.8	7,339.9	-3,405.6	8,011.9	1.84	
15,395.0	89.46	343.46	7,222.6	7,429.6	-3,433.5	8,105.9	1.57	
15,490.0	89.50	340.22	7,223.5	7,519.9	-3,463.1	8,200.9	3.41	
15,584.0	88.94	339.94	7,224.8	7,608.3	-3,495.1	8,294.7	0.67	

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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)	
15,678.0	91.21	341.88	7,224.6	7,697.1	-3,525.9	8,388.7	3.18	
15,772.0	88.07	345.43	7,225.2	7,787.3	-3,552.3	8,482.6	5.04	
15,866.0	88.96	347.17	7,227.7	7,878.5	-3,574.6	8,576.4	2.08	
15,961.0	87.62	347.34	7,230.5	7,971.2	-3,595.5	8,671.2	1.42	
16,055.0	86.21	342.12	7,235.6	8,061.7	-3,620.2	8,765.0	5.74	
16,149.0	89.80	344.68	7,238.8	8,151.7	-3,647.1	8,858.9	4.69	
16,243.0	89.83	343.19	7,239.1	8,242.0	-3,673.1	8,952.9	1.59	
16,337.0	89.30	341.63	7,239.8	8,331.6	-3,701.5	9,046.8	1.75	
16,431.0	89.63	341.50	7,240.7	8,420.8	-3,731.2	9,140.8	0.38	
16,525.0	89.23	341.07	7,241.7	8,509.8	-3,761.4	9,234.8	0.62	
16,620.0	91.04	342.33	7,241.4	8,600.0	-3,791.2	9,329.7	2.32	
16,714.0	90.94	342.74	7,239.8	8,689.7	-3,819.4	9,423.7	0.45	
16,808.0	90.67	342.42	7,238.5	8,779.3	-3,847.5	9,517.7	0.45	
16,902.0	88.86	338.90	7,238.9	8,868.0	-3,878.7	9,611.6	4.21	
16,996.0	91.31	341.74	7,238.7	8,956.5	-3,910.3	9,705.4	3.99	
17,090.0	88.99	341.65	7,238.5	9,045.7	-3,939.8	9,799.4	2.47	
17,185.0	89.33	341.03	7,239.9	9,135.7	-3,970.2	9,894.3	0.74	
17,279.0	89.23	342.64	7,241.1	9,225.0	-3,999.5	9,988.3	1.72	
17,374.0	88.69	342.28	7,242.8	9,315.6	-4,028.1	10,083.3	0.68	
17,469.0	90.64	344.66	7,243.3	9,406.7	-4,055.2	10,178.3	3.24	
17,564.0	90.60	344.10	7,242.3	9,498.2	-4,080.7	10,273.2	0.59	
17,622.0	90.66	343.67	7,241.7	9,553.9	-4,096.8	10,331.2	0.75	
17,677.0	90.66	343.67	7,241.0	9,606.7	-4,112.3	10,386.2	0.00	

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
6,981.0	6,804.9	-263.2	-762.2	Middlesex	
7,174.0	6,951.6	-248.8	-885.0	Burkett	
7,212.0	6,978.1	-238.6	-910.3	Tully	
7,519.0	7,125.1	-84.8	-1,124.4	Marcellus	

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

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