

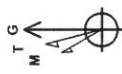
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WV GEOLOGICAL SURVEY
MORGANTOWN, WV



Callie Unit 2H
Doddridge County WV
Northing: 14249847.77
Easting: 1682092.43
As Drilled



Azimuths to Grid North
True North: -0.09°
Magnetic North: -8.50°
Magnetic Field
Strength: 52351.45nT
Dip Angle: 66.92°
Date: 8/13/2013
Model: BGGM2014

To convert Magnetic North to Grid, Subtract 8.50°
To convert True North to Grid, Subtract 0.09°

WELL DETAILS Callie Unit 2H

+N/S	+E/W	Northing	Longitude
0.0	0.0	14249847.77	1682092.43

LEGEND

- ◇ Callie Unit 1H, Original Wellpath, As Drilled V0
- △ Ahouse Unit 1H, Original Wellpath, As Drilled V0
- ▽ Ahouse Unit 2H, Original Wellpath, As Drilled V0
- Callie Unit 2H, Original Wellpath, Plan 3 Rev 1 V0
- As Drilled

PROJECT DETAILS: Doddridge County WV

Geoidetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Zone 17N (84 W to 78 W)
System Datum: Mean Sea Level

SITE DETAILS: Ahouse / Callie Pad

Site Center: Ahouse Unit 1H
Site Centre Northing: 14249870.09
Easting: 1682112.06

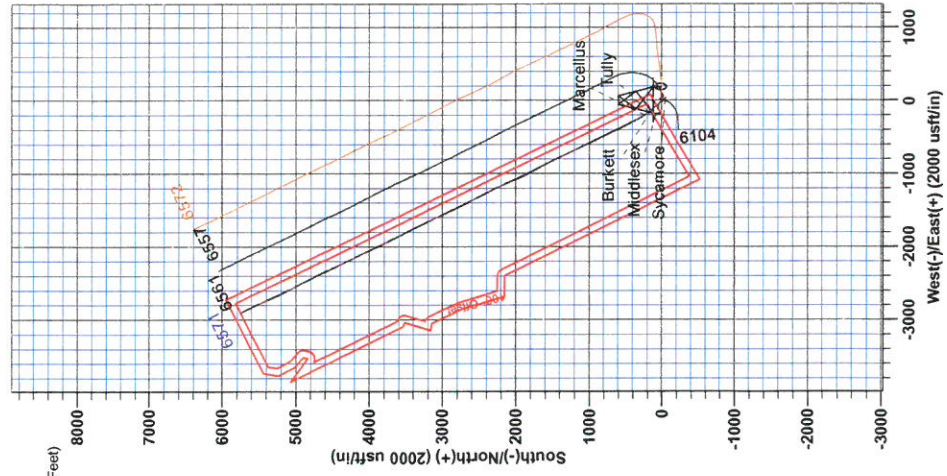
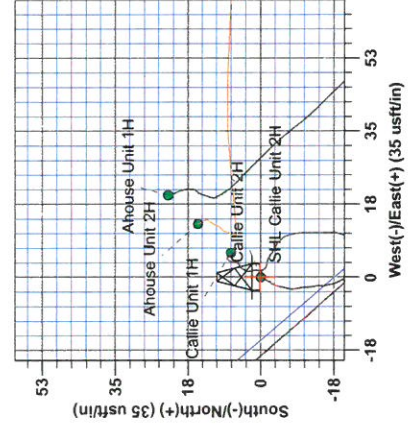
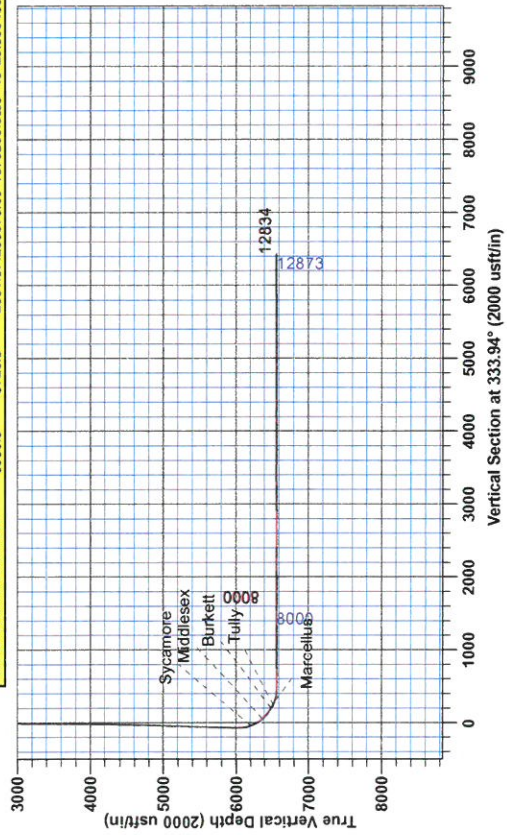
Positional Uncertainty: 2.8
Convergence: 0.09
Local North: Grid

Genie Lightfoot
9/25, May 15 2014
Scientific Drilling
421 South Eagle Lane
Oklahoma City, OK 73128

DESIGN TARGET DETAILS

Name	TVD	+N/S	+E/W	Northing	Easting	Latitude	Longitude
SHL Callie Unit 2H	0.0	0.0	0.0	14249847.77	1682092.43	14° 28.874' N	51° 10.098' W
Actual BHL Callie Unit 2H	6560.8	5728.3	-2891.6	14255576.09	1679200.83	15° 25.559' N	51° 46.753' W

Precision 522: 1005' GL +18' RKB @ 1023.0usft
Gr.: 1005.0





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MORGANTOWN, WV

Antero Resources

**Doddridge County WV
Ahouse / Callie Pad
Callie Unit 2H
Original Wellpath**

Design: As Drilled

EOW Completion Report

15 May, 2014





Company:	Antero Resources	Local Co-ordinate Reference:	Well Callie Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 522: 1005' GL +18' RKB @ 1023.0usft
Site:	Ahouse / Callie Pad	MD Reference:	Precision 522: 1005' GL +18' RKB @ 1023.0usft
Well:	Callie Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Project	Doddridge County WV, McClellan District		
Map System:	Universal Transverse Mercator (US Survey Fee	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Ahouse / Callie Pad				
Site Position:		Northing:	14,249,870.09 usft	Latitude:	39° 14' 29.095 N
From:	Map	Easting:	1,682,112.06 usft	Longitude:	80° 51' 9.848 W
Position Uncertainty:	2.8 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.09 °

Well	Callie Unit 2H					
Well Position	+N/-S	0.0 usft	Northing:	14,249,847.77 usft	Latitude:	39° 14' 28.874 N
	+E/-W	0.0 usft	Easting:	1,682,092.43 usft	Longitude:	80° 51' 10.098 W
Position Uncertainty		2.8 usft	Wellhead Elevation:	1,023.0 usft	Ground Level:	1,005.0 usft

Wellbore	Original Wellpath				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	8/13/2013	-8.41	66.92	52,351

Design	As Drilled				
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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	333.94

Survey Program	From (usft)	To (usft)	Date	Survey (Wellbore)	Tool Name	Description
	105.0	5,861.0	5/15/2014	Survey #3 Def Gyro to KOP (Original Well	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
	5,898.0	12,834.0		Survey #4 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
105.0	0.63	202.90	105.0	-0.5	-0.2	-0.4	0.60
205.0	0.54	211.22	205.0	-1.4	-0.7	-1.0	0.12
305.0	0.42	210.93	305.0	-2.2	-1.1	-1.4	0.12
405.0	0.41	217.82	405.0	-2.8	-1.5	-1.8	0.05
505.0	0.30	200.45	505.0	-3.3	-1.8	-2.1	0.15
605.0	0.31	195.17	605.0	-3.8	-2.0	-2.5	0.03
705.0	0.37	197.57	705.0	-4.4	-2.2	-3.0	0.06
805.0	0.48	190.74	805.0	-5.1	-2.3	-3.5	0.12
905.0	0.41	196.64	905.0	-5.8	-2.5	-4.1	0.08
1,005.0	0.39	196.80	1,005.0	-6.5	-2.7	-4.6	0.02

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WV GEOLOGICAL SURVEY EOW Completion Report
MORGANTOWN, WV



Company:	Antero Resources	Local Co-ordinate Reference:	Well Callie Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 522: 1005' GL +18' RKB @ 1023.0usft
Site:	Ahouse / Callie Pad	MD Reference:	Precision 522: 1005' GL +18' RKB @ 1023.0usft
Well:	Callie Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,105.0	0.46	184.54	1,105.0	-7.2	-2.9	-5.2	0.11
1,205.0	0.42	171.13	1,205.0	-8.0	-2.8	-5.9	0.11
1,305.0	0.21	180.50	1,305.0	-8.5	-2.8	-6.4	0.22
1,405.0	0.48	168.18	1,405.0	-9.1	-2.7	-7.0	0.28
1,505.0	0.47	165.79	1,505.0	-9.9	-2.5	-7.8	0.02
1,605.0	0.33	185.89	1,605.0	-10.6	-2.4	-8.5	0.20
1,705.0	0.31	172.88	1,705.0	-11.2	-2.4	-9.0	0.08
1,805.0	0.54	175.01	1,805.0	-11.9	-2.4	-9.7	0.23
1,905.0	0.43	166.71	1,905.0	-12.7	-2.2	-10.5	0.13
2,005.0	0.30	172.04	2,004.9	-13.4	-2.1	-11.1	0.13
2,105.0	0.27	183.23	2,104.9	-13.9	-2.1	-11.5	0.06
2,205.0	0.23	184.61	2,204.9	-14.3	-2.1	-11.9	0.04
2,305.0	0.34	185.50	2,304.9	-14.8	-2.2	-12.3	0.11
2,405.0	0.25	163.21	2,404.9	-15.3	-2.1	-12.8	0.14
2,505.0	0.22	165.41	2,504.9	-15.7	-2.0	-13.2	0.03
2,605.0	0.29	164.34	2,604.9	-16.1	-1.9	-13.7	0.07
2,705.0	0.26	171.33	2,704.9	-16.6	-1.8	-14.1	0.04
2,805.0	0.31	161.48	2,804.9	-17.1	-1.7	-14.6	0.07
2,905.0	0.28	159.33	2,904.9	-17.6	-1.5	-15.1	0.03
3,005.0	0.24	164.29	3,004.9	-18.0	-1.4	-15.6	0.05
3,105.0	0.35	157.07	3,104.9	-18.5	-1.2	-16.1	0.12
3,205.0	0.37	151.43	3,204.9	-19.0	-0.9	-16.7	0.04
3,305.0	0.29	150.54	3,304.9	-19.5	-0.6	-17.3	0.08
3,405.0	0.29	158.94	3,404.9	-20.0	-0.4	-17.8	0.04
3,505.0	0.31	146.60	3,504.9	-20.5	-0.2	-18.3	0.07
3,605.0	0.29	149.43	3,604.9	-20.9	0.1	-18.8	0.02
3,705.0	0.31	152.91	3,704.9	-21.4	0.4	-19.3	0.03
3,805.0	0.37	142.36	3,804.9	-21.9	0.7	-19.9	0.09
3,905.0	0.42	143.58	3,904.9	-22.4	1.1	-20.6	0.05
4,005.0	0.58	140.22	4,004.9	-23.1	1.6	-21.5	0.16
4,105.0	0.77	124.98	4,104.9	-23.9	2.5	-22.5	0.26
4,205.0	0.96	126.74	4,204.9	-24.8	3.7	-23.9	0.19
4,305.0	1.17	123.36	4,304.9	-25.8	5.3	-25.5	0.22
4,405.0	1.40	125.34	4,404.9	-27.1	7.1	-27.5	0.23
4,505.0	1.55	129.83	4,504.8	-28.7	9.1	-29.8	0.19
4,605.0	1.69	129.31	4,604.8	-30.5	11.3	-32.3	0.14
4,705.0	1.82	135.35	4,704.7	-32.5	13.6	-35.2	0.23
4,805.0	1.85	135.09	4,804.7	-34.8	15.8	-38.2	0.03
4,905.0	1.88	139.91	4,904.6	-37.2	18.0	-41.3	0.16
5,005.0	1.99	139.08	5,004.6	-39.8	20.2	-44.6	0.11
5,105.0	2.04	141.89	5,104.5	-42.5	22.5	-48.0	0.11
5,205.0	1.99	140.33	5,204.5	-45.2	24.7	-51.4	0.07
5,305.0	1.69	137.27	5,304.4	-47.6	26.8	-54.5	0.32
5,405.0	1.72	137.92	5,404.4	-49.8	28.8	-57.4	0.04

AUG 10 2015



WV GEOLOGICAL SURVEY EOW Completion Report
MORGANTOWN, WV



Company:	Antero Resources	Local Co-ordinate Reference:	Well Callie Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 522: 1005' GL +18' RKB @ 1023.0usft
Site:	Ahouse / Callie Pad	MD Reference:	Precision 522: 1005' GL +18' RKB @ 1023.0usft
Well:	Callie Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
5,505.0	1.69	137.87	5,504.3	-52.0	30.8	-60.3	0.03
5,605.0	1.66	137.84	5,604.3	-54.2	32.7	-63.1	0.03
5,705.0	1.66	138.87	5,704.2	-56.4	34.7	-65.9	0.03
5,805.0	1.53	144.72	5,804.2	-58.5	36.4	-68.6	0.21
5,861.0	1.38	144.88	5,860.2	-59.7	37.2	-70.0	0.27
5,898.0	1.12	138.28	5,897.2	-60.3	37.7	-70.8	0.80
5,990.0	1.05	139.96	5,989.1	-61.7	38.8	-72.5	0.08
6,083.0	5.36	303.70	6,082.0	-59.9	35.8	-69.5	6.85
6,114.0	9.80	311.27	6,112.8	-57.4	32.6	-65.8	14.65
6,145.0	13.32	315.96	6,143.1	-53.0	28.1	-60.0	11.74
6,176.0	16.49	318.39	6,173.1	-47.2	22.7	-52.4	10.42
6,205.0	19.72	318.73	6,200.6	-40.4	16.8	-43.7	11.14
Sycamore							
6,206.0	19.83	318.74	6,201.6	-40.2	16.5	-43.4	11.14
6,237.0	22.91	318.43	6,230.4	-31.7	9.1	-32.5	9.94
6,268.0	26.08	317.86	6,258.6	-22.1	0.5	-20.1	10.25
6,299.0	29.67	318.62	6,286.0	-11.3	-9.2	-6.1	11.64
6,330.0	33.04	319.50	6,312.5	0.9	-19.7	9.4	10.97
6,361.0	36.42	320.89	6,338.0	14.4	-31.0	26.6	11.20
6,392.0	40.17	321.87	6,362.3	29.4	-43.0	45.3	12.25
6,400.0	41.17	321.98	6,368.4	33.5	-46.2	50.4	12.58
Middlesex							
6,423.0	44.06	322.27	6,385.3	45.8	-55.8	65.7	12.58
6,453.0	47.92	322.26	6,406.1	62.9	-69.0	86.8	12.87
6,484.0	51.20	321.93	6,426.3	81.5	-83.5	109.9	10.61
6,515.0	53.25	321.03	6,445.2	100.7	-98.7	133.8	7.00
6,546.0	55.09	321.11	6,463.4	120.2	-114.5	158.3	5.94
6,577.0	56.60	320.94	6,480.8	140.2	-130.7	183.3	4.89
6,591.0	57.48	320.63	6,488.4	149.3	-138.1	194.8	6.55
Burkett							
6,608.0	58.55	320.27	6,497.4	160.4	-147.3	208.8	6.55
6,639.0	61.16	321.49	6,513.0	181.2	-164.2	234.9	9.08
6,643.0	61.66	321.72	6,514.9	183.9	-166.4	238.3	13.57
Tully							
6,670.0	65.07	323.23	6,527.0	203.1	-181.1	262.0	13.57
6,700.0	68.97	324.39	6,538.7	225.4	-197.4	289.2	13.48
6,719.0	70.87	326.11	6,545.2	240.0	-207.5	306.8	13.12
Marcellus							
6,731.0	72.08	327.17	6,549.0	249.5	-213.8	318.1	13.12
6,762.0	76.59	328.68	6,557.4	274.8	-229.6	347.8	15.29
6,793.0	81.25	329.21	6,563.4	300.9	-245.3	378.1	15.13
6,824.0	85.23	330.10	6,567.0	327.4	-260.9	408.8	13.15
6,923.0	90.22	333.51	6,570.9	414.6	-307.6	507.6	6.10
7,016.0	90.13	333.42	6,570.7	497.8	-349.1	600.6	0.14
7,108.0	91.28	333.51	6,569.5	580.1	-390.2	692.5	1.25

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MORGANTOWN, WV



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Project:	Doddridge County WV	TVD Reference:	Precision 522: 1005' GL +18' RKB @ 1023.0usft
Site:	Ahouse / Callie Pad	MD Reference:	Precision 522: 1005' GL +18' RKB @ 1023.0usft
Well:	Callie Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
7,201.0	91.19	334.39	6,567.5	663.6	-431.1	785.5	0.95
7,294.0	90.84	334.65	6,565.9	747.6	-471.1	878.5	0.47
7,386.0	90.22	334.22	6,565.0	830.6	-510.8	970.5	0.82
7,479.0	89.52	333.78	6,565.2	914.1	-551.5	1,063.5	0.89
7,571.0	91.19	334.74	6,564.7	997.0	-591.5	1,155.5	2.09
7,664.0	90.31	335.09	6,563.4	1,081.2	-630.9	1,248.5	1.02
7,756.0	89.78	335.01	6,563.4	1,164.6	-669.7	1,340.5	0.58
7,849.0	89.69	335.80	6,563.8	1,249.2	-708.4	1,433.4	0.85
7,942.0	89.43	336.32	6,564.5	1,334.2	-746.2	1,526.4	0.63
8,035.0	88.90	333.16	6,565.9	1,418.3	-785.8	1,619.3	3.44
8,127.0	89.78	332.55	6,566.9	1,500.1	-827.8	1,711.3	1.16
8,220.0	89.96	332.19	6,567.1	1,582.5	-870.9	1,804.3	0.43
8,312.0	90.13	330.52	6,567.1	1,663.3	-915.0	1,896.2	1.82
8,405.0	90.66	331.40	6,566.4	1,744.6	-960.2	1,989.0	1.10
8,500.0	89.69	333.07	6,566.1	1,828.6	-1,004.4	2,084.0	2.03
8,594.0	90.40	334.13	6,566.1	1,912.8	-1,046.2	2,178.0	1.36
8,689.0	89.34	337.12	6,566.3	1,999.4	-1,085.4	2,272.9	3.34
8,784.0	88.96	336.61	6,567.7	2,086.7	-1,122.7	2,367.8	0.67
8,879.0	89.78	336.32	6,568.7	2,173.8	-1,160.7	2,462.7	0.92
8,973.0	89.96	335.80	6,569.0	2,259.7	-1,198.8	2,556.6	0.59
9,067.0	89.60	334.48	6,569.3	2,345.0	-1,238.3	2,650.6	1.46
9,161.0	90.66	331.05	6,569.1	2,428.6	-1,281.3	2,744.6	3.82
9,256.0	90.84	331.32	6,567.9	2,511.8	-1,327.1	2,839.5	0.34
9,350.0	90.92	330.96	6,566.4	2,594.1	-1,372.5	2,933.3	0.39
9,443.0	90.40	333.34	6,565.3	2,676.3	-1,415.9	3,026.3	2.62
9,536.0	89.69	334.22	6,565.3	2,759.8	-1,457.0	3,119.3	1.22
9,628.0	91.54	335.36	6,564.3	2,843.0	-1,496.2	3,211.3	2.36
9,721.0	90.84	335.80	6,562.3	2,927.6	-1,534.6	3,304.2	0.89
9,813.0	90.75	334.83	6,561.1	3,011.2	-1,573.1	3,396.2	1.06
9,906.0	88.55	335.01	6,561.6	3,095.5	-1,612.5	3,489.1	2.37
9,999.0	88.99	335.09	6,563.6	3,179.8	-1,651.7	3,582.1	0.48
10,091.0	89.25	334.92	6,565.0	3,263.1	-1,690.6	3,674.1	0.34
10,184.0	90.22	332.72	6,565.5	3,346.6	-1,731.6	3,767.1	2.59
10,276.0	90.84	332.90	6,564.6	3,428.4	-1,773.6	3,859.0	0.70
10,369.0	90.57	332.81	6,563.5	3,511.2	-1,816.1	3,952.0	0.31
10,462.0	90.48	332.37	6,562.6	3,593.7	-1,858.9	4,045.0	0.48
10,554.0	90.13	332.81	6,562.1	3,675.4	-1,901.2	4,137.0	0.61
10,647.0	90.13	333.42	6,561.9	3,758.3	-1,943.3	4,229.9	0.66
10,739.0	89.52	332.63	6,562.2	3,840.3	-1,985.0	4,321.9	1.08
10,832.0	90.66	335.62	6,562.1	3,924.0	-2,025.6	4,414.9	3.44
10,925.0	90.75	334.57	6,560.9	4,008.3	-2,064.8	4,507.9	1.13
11,017.0	89.43	336.15	6,560.8	4,091.9	-2,103.1	4,599.9	2.24
11,110.0	89.60	334.43	6,561.6	4,176.4	-2,142.0	4,692.8	1.86
11,202.0	89.43	334.83	6,562.3	4,259.6	-2,181.4	4,784.8	0.47
11,295.0	89.52	335.53	6,563.2	4,344.0	-2,220.4	4,877.8	0.76

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EOW Completion Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Callie Unit 2H
Project:	Doddridge County WV	TVD Reference:	Precision 522: 1005' GL +18' RKB @ 1023.0usft
Site:	Ahouse / Callie Pad	MD Reference:	Precision 522: 1005' GL +18' RKB @ 1023.0usft
Well:	Callie Unit 2H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,388.0	88.69	334.10	6,564.6	4,428.1	-2,260.0	4,970.8	1.78
11,481.0	89.69	333.34	6,566.0	4,511.5	-2,301.2	5,063.8	1.35
11,573.0	90.22	334.57	6,566.0	4,594.1	-2,341.6	5,155.8	1.46
11,666.0	90.22	335.36	6,565.7	4,678.4	-2,380.9	5,248.7	0.85
11,758.0	89.69	333.51	6,565.8	4,761.4	-2,420.6	5,340.7	2.09
11,851.0	90.40	332.99	6,565.7	4,844.4	-2,462.5	5,433.7	0.95
11,944.0	90.22	332.46	6,565.2	4,927.1	-2,505.1	5,526.7	0.60
12,036.0	89.87	331.40	6,565.1	5,008.3	-2,548.4	5,618.6	1.21
12,129.0	90.66	331.14	6,564.7	5,089.8	-2,593.1	5,711.5	0.89
12,222.0	90.92	333.69	6,563.4	5,172.2	-2,636.2	5,804.5	2.76
12,314.0	90.13	335.01	6,562.5	5,255.2	-2,676.0	5,896.5	1.67
12,407.0	89.87	335.09	6,562.5	5,339.5	-2,715.2	5,989.5	0.29
12,500.0	91.36	335.62	6,561.5	5,424.0	-2,754.0	6,082.4	1.70
12,592.0	89.96	335.45	6,560.5	5,507.7	-2,792.1	6,174.4	1.53
12,685.0	89.69	335.27	6,560.8	5,592.3	-2,830.8	6,267.4	0.35
12,775.0	90.13	336.24	6,560.9	5,674.3	-2,867.8	6,357.3	1.18
12,834.0	90.13	336.24	6,560.8	5,728.3	-2,891.6	6,416.3	0.00

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,205.0	6,200.6	-40.4	16.8	Sycamore
6,400.0	6,368.4	33.5	-46.2	Middlesex
6,591.0	6,488.4	149.3	-138.1	Burkett
6,643.0	6,514.9	183.9	-166.4	Tully
6,719.0	6,545.2	240.0	-207.5	Marcellus

Checked By: _____ Approved By: _____ Date: _____