



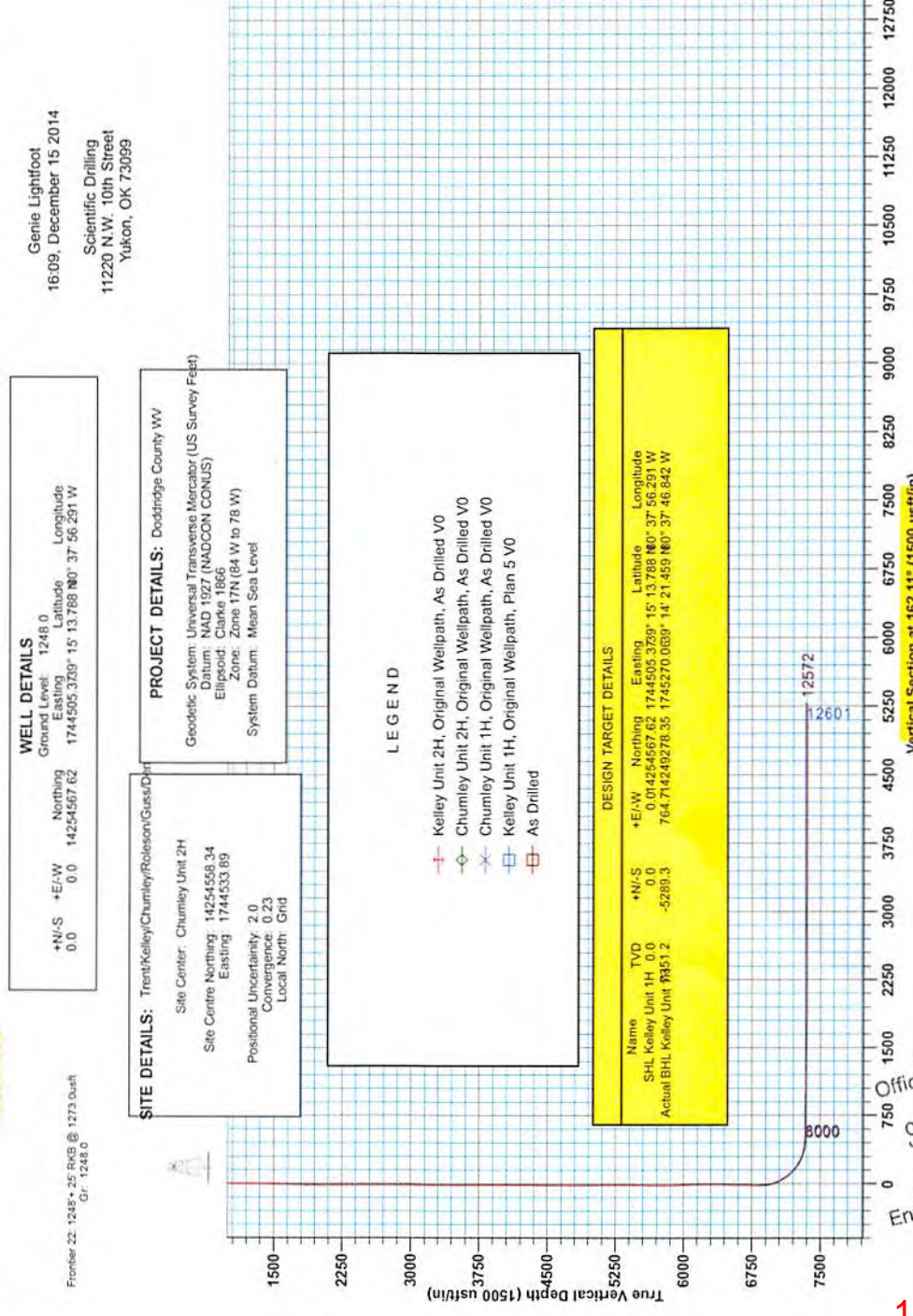
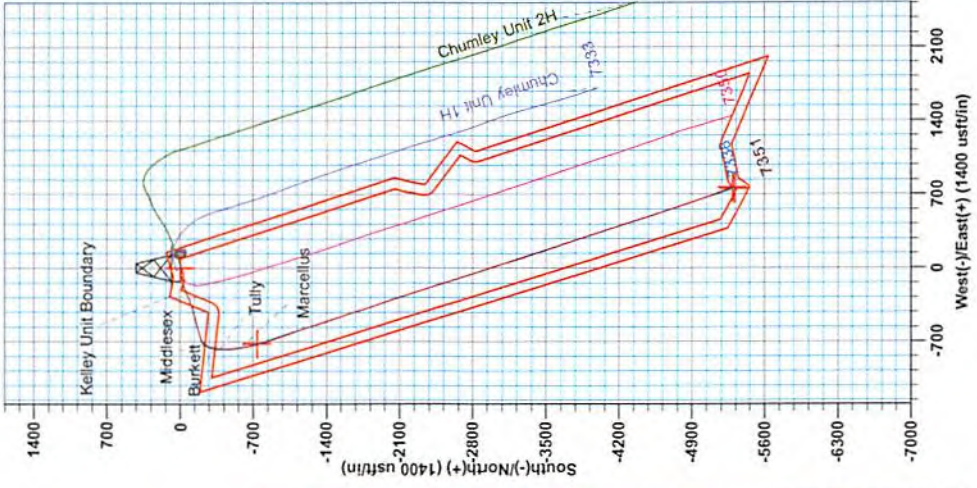
Kelley Unit 1H
 Doddridge County WV
 Northing: 14254567.62
 Easting: 1744505.37
 As Drilled



Genie Lightfoot
 16:09, December 15 2014
 Scientific Drilling
 11220 N.W. 10th Street
 Yukon, OK 73099

Admaths to Grid North
 True North: -0.23°
 Magnetic North: -8.80°
 Magnetic Field
 Strength: 52201.3nT
 Dip Angle: 66.81°
 Date: 8/12/2014
 Model: BGGM2014

To convert Magnetic North to Grid, Subtract 8.81°
 To convert True North to Grid, Subtract 0.23°



WELL DETAILS
 Ground Level: 1248.0
 Easting: 1744505.3739-15° 13.788 N0° 37' 56.291 W
 Longitude: 1744505.37
 Latitude: 13.788 N0° 37' 56.291 W

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

LEGEND

- Kelley Unit 2H, Original Wellpath, As Drilled V0
- Chumley Unit 2H, Original Wellpath, As Drilled V0
- Chumley Unit 1H, Original Wellpath, As Drilled V0
- Kelley Unit 1H, Original Wellpath, Plan 5 V0
- As Drilled

DESIGN TARGET DETAILS

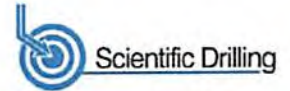
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Kelley Unit 1H	0.0	0.0	0.0	14254567.62	1744505.3739-15°	13.788 N0° 37' 56.291 W	764.714249278 35 1745270 069° 14' 21.459 N0° 37' 46.842 W
Actual BHL Kelley Unit 1H	12572	-5289.3	-5289.3	14254567.62	1744505.3739-15°	13.788 N0° 37' 56.291 W	764.714249278 35 1745270 069° 14' 21.459 N0° 37' 46.842 W

SITE DETAILS: Trent/Kelley/Chumley/Roleson/Guss/Dirt
 Site Center: Chumley Unit 2H
 Site Centre Northing: 14254568.34
 Easting: 1744533.89
 Positional Uncertainty: 2.0
 Convergence: 0.23
 Local North: Grid

Frontier 22-1248*-25 RKB @ 1273.0usft
 Gr: 1248.0

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 WV Department of
 Environmental Protection

11/10/2017



Company:	Antero	Local Co-ordinate Reference:	Well Kelley Unit 1H
Project:	Doddridge County WV	TVD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Site:	Trent/Kelley/Chumley/Roleson/Guss/Denver	MD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Well:	Kelley Unit 1H	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 Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site	Trent/Kelley/Chumley/Roleson/Guss/Denver
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Site Position:		Northing:	14,254,558.34 usft	Latitude:	39° 15' 13.695 N
From:	Map	Easting:	1,744,533.89 usft	Longitude:	80° 37' 55.929 W
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.23 °

Well	Kelley Unit 1H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,254,567.62 usft	Latitude:	39° 15' 13.788 N
	+E/-W	0.0 usft	Easting:	1,744,505.37 usft	Longitude:	80° 37' 56.291 W
Position Uncertainty	0.0 usft		Wellhead Elevation:	1,273.0 usft	Ground Level:	1,248.0 usft

Wellbore	Original Wellpath
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2014	8/12/2014	-8.57	66.81	52,201

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	162.11	

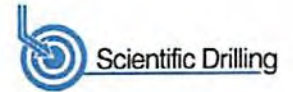
Survey Program	Date	From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
	12/15/2014	112.0	6,741.2	Survey #7 Final Gyro to KOP (Original We	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
		6,843.0	12,572.0	Survey #8 SDI MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1

Survey	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	0.22	213.19	112.0	-0.2	-0.1	0.1	0.20
	137.0	0.19	174.93	137.0	-0.3	-0.1	0.2	0.55
	162.0	0.27	187.94	162.0	-0.4	-0.1	0.3	0.38
	187.0	0.23	152.46	187.0	-0.5	-0.1	0.4	0.63
	212.0	0.24	190.15	212.0	-0.6	-0.1	0.5	0.61
	237.0	0.32	194.59	237.0	-0.7	-0.1	0.6	0.33
	262.0	0.15	186.99	262.0	-0.8	-0.2	0.7	0.69
	287.0	0.16	232.88	287.0	-0.8	-0.2	0.7	0.48
	312.0	0.28	254.42	312.0	-0.9	-0.3	0.7	0.57
	337.0	0.17	288.61	337.0	-0.9	-0.3	0.7	0.68

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EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well Kelley Unit 1H
Project:	Doddridge County WV	TVD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Site:	Trent/Kelley/Chumley/Roleson/Guss/Denver	MD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Well:	Kelley Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

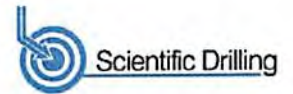
Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
362.0	0.18	271.76	362.0	-0.9	-0.5	0.7	0.21
387.0	0.11	293.76	387.0	-0.9	-0.5	0.7	0.35
412.0	0.12	299.97	412.0	-0.8	-0.6	0.6	0.06
437.0	0.13	260.71	437.0	-0.8	-0.6	0.6	0.34
462.0	0.09	259.38	462.0	-0.8	-0.7	0.6	0.16
487.0	0.15	231.48	487.0	-0.9	-0.7	0.6	0.33
512.0	0.23	247.79	512.0	-0.9	-0.8	0.6	0.38
537.0	0.25	240.39	537.0	-0.9	-0.9	0.6	0.15
562.0	0.11	258.71	562.0	-1.0	-0.9	0.6	0.60
587.0	0.18	250.20	587.0	-1.0	-1.0	0.6	0.29
612.0	0.25	275.32	612.0	-1.0	-1.1	0.6	0.46
637.0	0.18	294.12	637.0	-1.0	-1.2	0.6	0.39
662.0	0.05	312.76	662.0	-1.0	-1.2	0.5	0.53
687.0	0.17	265.02	687.0	-0.9	-1.3	0.5	0.57
712.0	0.18	240.56	712.0	-1.0	-1.3	0.5	0.30
737.0	0.17	251.32	737.0	-1.0	-1.4	0.5	0.14
762.0	0.25	276.78	762.0	-1.0	-1.5	0.5	0.48
787.0	0.17	276.94	787.0	-1.0	-1.6	0.5	0.32
812.0	0.08	294.39	812.0	-1.0	-1.6	0.4	0.39
837.0	0.01	249.52	837.0	-1.0	-1.7	0.4	0.29
862.0	0.10	245.17	862.0	-1.0	-1.7	0.4	0.36
887.0	0.21	226.05	887.0	-1.0	-1.7	0.4	0.48
912.0	0.22	259.43	912.0	-1.1	-1.8	0.5	0.50
937.0	0.29	299.67	937.0	-1.0	-1.9	0.4	0.75
962.0	0.11	328.07	962.0	-1.0	-2.0	0.3	0.80
987.0	0.15	244.57	987.0	-1.0	-2.0	0.3	0.70
1,012.0	0.10	199.56	1,012.0	-1.0	-2.1	0.3	0.43
1,037.0	0.12	231.22	1,037.0	-1.1	-2.1	0.4	0.25
1,062.0	0.22	271.09	1,062.0	-1.1	-2.2	0.4	0.60
1,087.0	0.13	293.75	1,087.0	-1.1	-2.2	0.3	0.45
1,112.0	0.18	293.84	1,112.0	-1.0	-2.3	0.3	0.20
1,137.0	0.20	293.02	1,137.0	-1.0	-2.4	0.2	0.08
1,162.0	0.17	276.50	1,162.0	-1.0	-2.4	0.2	0.24
1,187.0	0.18	239.30	1,187.0	-1.0	-2.5	0.2	0.45
1,212.0	0.22	249.71	1,212.0	-1.0	-2.6	0.2	0.22
1,237.0	0.60	245.97	1,237.0	-1.1	-2.8	0.2	1.52
1,262.0	1.55	245.03	1,262.0	-1.3	-3.2	0.3	3.80
1,287.0	2.40	247.06	1,287.0	-1.6	-4.0	0.3	3.41
1,312.0	3.21	250.12	1,311.9	-2.1	-5.1	0.4	3.29
1,337.0	3.70	253.20	1,336.9	-2.6	-6.5	0.4	2.10
1,362.0	4.01	255.87	1,361.8	-3.0	-8.2	0.4	1.43
1,387.0	4.15	256.40	1,386.8	-3.4	-9.9	0.2	0.58
1,412.0	4.26	256.40	1,411.7	-3.9	-11.7	0.1	0.44
1,437.0	4.60	259.20	1,436.6	-4.3	-13.6	-0.1	1.61

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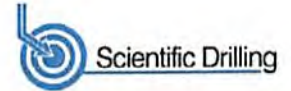
EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well Kelley Unit 1H
Project:	Doddridge County WV	TVD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Site:	Trent/Kelley/Chumley/Roleson/Guss/Denver	MD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Well:	Kelley Unit 1H	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)	
1,462.0	4.77	259.99	1,461.6	-4.6	-15.6	-0.4	0.73	
1,487.0	4.84	260.79	1,486.5	-5.0	-17.6	-0.7	0.39	
1,512.0	4.96	262.12	1,511.4	-5.3	-19.7	-1.0	0.66	
1,537.0	5.11	266.50	1,536.3	-5.5	-21.9	-1.5	1.65	
1,562.0	5.20	268.41	1,561.2	-5.6	-24.2	-2.1	0.78	
1,587.0	5.24	268.19	1,586.1	-5.7	-26.4	-2.7	0.18	
1,612.0	5.40	268.80	1,611.0	-5.7	-28.8	-3.4	0.68	
1,637.0	5.27	269.49	1,635.9	-5.8	-31.1	-4.0	0.58	
1,662.0	4.11	276.38	1,660.8	-5.7	-33.1	-4.8	5.15	
1,687.0	3.73	278.36	1,685.7	-5.5	-34.8	-5.5	1.61	
1,712.0	3.45	278.40	1,710.7	-5.2	-36.4	-6.2	1.12	
1,737.0	3.15	280.03	1,735.6	-5.0	-37.8	-6.8	1.26	
1,762.0	2.93	279.50	1,760.6	-4.8	-39.1	-7.4	0.89	
1,787.0	2.62	280.20	1,785.6	-4.6	-40.3	-8.0	1.25	
1,812.0	2.44	280.47	1,810.5	-4.4	-41.4	-8.5	0.72	
1,837.0	2.20	281.46	1,835.5	-4.2	-42.4	-9.0	0.97	
1,862.0	1.81	281.15	1,860.5	-4.0	-43.2	-9.4	1.56	
1,887.0	1.80	279.72	1,885.5	-3.9	-44.0	-9.8	0.18	
1,912.0	1.63	279.32	1,910.5	-3.8	-44.7	-10.2	0.68	
1,937.0	1.41	280.14	1,935.5	-3.6	-45.4	-10.5	0.88	
1,962.0	1.20	280.20	1,960.5	-3.5	-46.0	-10.7	0.84	
1,987.0	1.07	280.88	1,985.5	-3.5	-46.4	-11.0	0.52	
2,012.0	0.84	275.93	2,010.5	-3.4	-46.9	-11.2	0.98	
2,037.0	0.84	272.29	2,035.4	-3.4	-47.2	-11.3	0.21	
2,062.0	0.78	277.30	2,060.4	-3.3	-47.6	-11.4	0.37	
2,087.0	0.62	276.31	2,085.4	-3.3	-47.9	-11.6	0.64	
2,112.0	0.65	271.02	2,110.4	-3.3	-48.1	-11.7	0.26	
2,137.0	0.72	266.72	2,135.4	-3.3	-48.4	-11.8	0.35	
2,162.0	0.68	274.83	2,160.4	-3.3	-48.8	-11.8	0.43	
2,187.0	0.70	278.98	2,185.4	-3.2	-49.0	-12.0	0.22	
2,212.0	0.49	274.93	2,210.4	-3.2	-49.3	-12.1	0.86	
2,237.0	0.39	274.93	2,235.4	-3.2	-49.5	-12.2	0.40	
2,262.0	0.33	263.35	2,260.4	-3.2	-49.7	-12.2	0.38	
2,287.0	0.39	270.78	2,285.4	-3.2	-49.8	-12.2	0.30	
2,312.0	0.33	264.78	2,310.4	-3.2	-50.0	-12.3	0.28	
2,337.0	0.29	283.18	2,335.4	-3.2	-50.1	-12.3	0.43	
2,362.0	0.28	292.41	2,360.4	-3.2	-50.2	-12.4	0.19	
2,387.0	0.13	233.28	2,385.4	-3.2	-50.3	-12.4	0.96	
2,412.0	0.30	273.79	2,410.4	-3.2	-50.4	-12.5	0.87	
2,437.0	0.12	237.09	2,435.4	-3.2	-50.5	-12.5	0.86	
2,462.0	0.30	285.67	2,460.4	-3.2	-50.6	-12.5	0.95	
2,487.0	0.20	267.65	2,485.4	-3.2	-50.7	-12.6	0.50	
2,512.0	0.24	276.53	2,510.4	-3.2	-50.8	-12.6	0.21	
2,537.0	0.30	276.35	2,535.4	-3.1	-50.9	-12.6	0.24	
2,562.0	0.20	314.46	2,560.4	-3.1	-51.0	-12.7	0.75	

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Company:	Antero	Local Co-ordinate Reference:	Well Kelley Unit 1H
Project:	Doddridge County WV	TVD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Site:	Trent/Kelley/Chumley/Roleson/Guss/Denver	MD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Well:	Kelley Unit 1H	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)
2,587.0	0.15	284.68	2,585.4	-3.1	-51.0	-12.8	0.41
2,612.0	0.11	261.66	2,610.4	-3.1	-51.1	-12.8	0.26
2,637.0	0.09	284.06	2,635.4	-3.1	-51.1	-12.8	0.17
2,662.0	0.17	224.36	2,660.4	-3.1	-51.2	-12.8	0.59
2,687.0	0.30	252.54	2,685.4	-3.1	-51.3	-12.8	0.68
2,712.0	0.28	259.29	2,710.4	-3.2	-51.4	-12.8	0.16
2,737.0	0.28	266.42	2,735.4	-3.2	-51.5	-12.8	0.14
2,762.0	0.23	289.30	2,760.4	-3.2	-51.6	-12.8	0.45
2,787.0	0.19	275.79	2,785.4	-3.1	-51.7	-12.9	0.25
2,812.0	0.16	286.96	2,810.4	-3.1	-51.8	-12.9	0.18
2,837.0	0.10	263.17	2,835.4	-3.1	-51.8	-13.0	0.32
2,862.0	0.14	262.44	2,860.4	-3.1	-51.9	-13.0	0.16
2,887.0	0.11	269.59	2,885.4	-3.1	-51.9	-13.0	0.14
2,912.0	0.16	252.56	2,910.4	-3.1	-52.0	-13.0	0.25
2,937.0	0.28	251.41	2,935.4	-3.2	-52.1	-13.0	0.48
2,962.0	0.23	250.37	2,960.4	-3.2	-52.2	-13.0	0.20
2,987.0	0.30	250.51	2,985.4	-3.2	-52.3	-13.0	0.28
3,012.0	0.34	250.15	3,010.4	-3.3	-52.4	-13.0	0.16
3,037.0	0.37	261.57	3,035.4	-3.3	-52.6	-13.0	0.31
3,062.0	0.28	272.58	3,060.4	-3.3	-52.7	-13.0	0.44
3,087.0	0.36	271.82	3,085.4	-3.3	-52.9	-13.1	0.32
3,112.0	0.30	290.87	3,110.4	-3.3	-53.0	-13.1	0.50
3,137.0	0.27	294.19	3,135.4	-3.3	-53.1	-13.2	0.14
3,162.0	0.30	293.19	3,160.4	-3.2	-53.2	-13.3	0.12
3,187.0	0.31	293.53	3,185.4	-3.2	-53.4	-13.4	0.04
3,212.0	0.33	294.27	3,210.4	-3.1	-53.5	-13.5	0.08
3,237.0	0.29	299.89	3,235.4	-3.0	-53.6	-13.6	0.20
3,262.0	0.24	301.82	3,260.4	-3.0	-53.7	-13.7	0.20
3,287.0	0.21	272.33	3,285.4	-3.0	-53.8	-13.7	0.47
3,312.0	0.22	279.14	3,310.4	-2.9	-53.9	-13.8	0.11
3,337.0	0.28	268.47	3,335.4	-2.9	-54.0	-13.8	0.30
3,362.0	0.33	266.53	3,360.4	-2.9	-54.1	-13.8	0.20
3,387.0	0.34	257.05	3,385.4	-3.0	-54.3	-13.8	0.23
3,412.0	0.39	265.92	3,410.4	-3.0	-54.4	-13.9	0.30
3,437.0	0.38	274.27	3,435.4	-3.0	-54.6	-13.9	0.23
3,462.0	0.37	287.07	3,460.4	-3.0	-54.8	-14.0	0.34
3,487.0	0.40	291.11	3,485.4	-2.9	-54.9	-14.1	0.16
3,512.0	0.28	292.85	3,510.4	-2.8	-55.1	-14.2	0.48
3,537.0	0.27	291.47	3,535.4	-2.8	-55.2	-14.3	0.05
3,562.0	0.33	310.75	3,560.4	-2.7	-55.3	-14.4	0.47
3,587.0	0.21	294.27	3,585.4	-2.7	-55.4	-14.5	0.57
3,612.0	0.20	296.94	3,610.4	-2.6	-55.5	-14.5	0.06
3,637.0	0.16	296.66	3,635.4	-2.6	-55.5	-14.6	0.16
3,662.0	0.17	235.38	3,660.4	-2.6	-55.6	-14.6	0.67

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SEP 18 2017

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WV Department of
Environmental Protection



EOW Completion Report



Company:	Antero	Local Co-ordinate Reference:	Well Kelley Unit 1H
Project:	Doddridge County WV	TVD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Site:	Trent/Kelley/Chumley/Roleson/Guss/Denver	MD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Well:	Kelley Unit 1H	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)
3,687.0	0.11	292.76	3,685.4	-2.6	-55.6	-14.6	0.58
3,712.0	0.18	281.65	3,710.4	-2.6	-55.7	-14.6	0.30
3,737.0	0.22	240.78	3,735.4	-2.6	-55.8	-14.7	0.58
3,762.0	0.30	272.90	3,760.4	-2.6	-55.9	-14.7	0.65
3,787.0	0.32	264.18	3,785.4	-2.6	-56.0	-14.7	0.20
3,812.0	0.26	289.11	3,810.4	-2.6	-56.1	-14.8	0.55
3,837.0	0.31	289.94	3,835.4	-2.6	-56.3	-14.8	0.20
3,862.0	0.30	296.97	3,860.4	-2.5	-56.4	-14.9	0.15
3,887.0	0.25	295.14	3,885.4	-2.5	-56.5	-15.0	0.20
3,912.0	0.22	287.58	3,910.4	-2.4	-56.6	-15.1	0.17
3,937.0	0.24	297.80	3,935.4	-2.4	-56.7	-15.1	0.18
3,962.0	0.18	286.49	3,960.4	-2.4	-56.8	-15.2	0.29
3,987.0	0.27	274.06	3,985.4	-2.3	-56.9	-15.2	0.41
4,012.0	0.28	268.37	4,010.4	-2.3	-57.0	-15.3	0.12
4,037.0	0.29	257.22	4,035.4	-2.4	-57.1	-15.3	0.23
4,062.0	0.33	267.41	4,060.4	-2.4	-57.2	-15.3	0.27
4,087.0	0.35	266.14	4,085.4	-2.4	-57.4	-15.4	0.09
4,112.0	0.36	263.73	4,110.4	-2.4	-57.5	-15.4	0.07
4,137.0	0.41	258.07	4,135.4	-2.4	-57.7	-15.4	0.25
4,162.0	0.43	268.04	4,160.4	-2.5	-57.9	-15.4	0.30
4,187.0	0.28	274.80	4,185.4	-2.4	-58.0	-15.5	0.62
4,212.0	0.33	260.64	4,210.4	-2.5	-58.2	-15.5	0.36
4,237.0	0.37	270.66	4,235.4	-2.5	-58.3	-15.6	0.29
4,262.0	0.36	272.84	4,260.4	-2.5	-58.5	-15.6	0.07
4,287.0	0.34	271.90	4,285.4	-2.5	-58.6	-15.7	0.08
4,312.0	0.29	266.25	4,310.4	-2.5	-58.8	-15.7	0.24
4,337.0	0.37	271.87	4,335.4	-2.5	-58.9	-15.8	0.34
4,362.0	0.44	283.60	4,360.4	-2.4	-59.1	-15.8	0.43
4,387.0	0.31	289.40	4,385.4	-2.4	-59.2	-15.9	0.54
4,412.0	0.30	279.90	4,410.4	-2.4	-59.4	-16.0	0.21
4,437.0	0.30	296.15	4,435.4	-2.3	-59.5	-16.1	0.34
4,462.0	0.27	310.01	4,460.4	-2.2	-59.6	-16.2	0.30
4,487.0	0.27	307.29	4,485.4	-2.2	-59.7	-16.3	0.05
4,512.0	0.12	314.82	4,510.4	-2.1	-59.8	-16.3	0.61
4,537.0	0.22	336.38	4,535.4	-2.1	-59.8	-16.4	0.47
4,562.0	0.16	339.15	4,560.4	-2.0	-59.8	-16.5	0.24
4,587.0	0.13	280.73	4,585.4	-1.9	-59.9	-16.5	0.58
4,612.0	0.10	355.14	4,610.4	-1.9	-59.9	-16.6	0.56
4,637.0	0.10	303.51	4,635.4	-1.9	-59.9	-16.6	0.35
4,662.0	0.13	357.66	4,660.4	-1.8	-59.9	-16.7	0.43
4,687.0	0.16	44.63	4,685.4	-1.8	-59.9	-16.7	0.48
4,712.0	0.08	303.85	4,710.4	-1.8	-59.9	-16.7	0.77
4,737.0	0.12	351.48	4,735.4	-1.7	-59.9	-16.8	0.35
4,762.0	0.23	330.45	4,760.4	-1.6	-59.9	-16.8	0.50

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EOW Completion Report

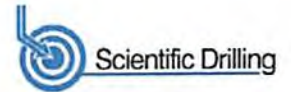


Company:	Antero	Local Co-ordinate Reference:	Well Kelley Unit 1H
Project:	Doddridge County WV	TVD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Site:	Trent/Kelley/Chumley/Roleson/Guss/Denver	MD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Well:	Kelley Unit 1H	North Reference:	Grid
Wellbore:	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)	
4,787.0	0.34	332.97	4,785.4	-1.5	-60.0	-17.0	0.44	
4,812.0	0.41	354.07	4,810.4	-1.4	-60.1	-17.1	0.61	
4,837.0	0.08	299.26	4,835.4	-1.3	-60.1	-17.2	1.48	
4,862.0	0.14	250.25	4,860.4	-1.3	-60.1	-17.2	0.43	
4,887.0	0.08	317.95	4,885.4	-1.3	-60.2	-17.3	0.53	
4,912.0	0.11	354.73	4,910.4	-1.2	-60.2	-17.3	0.27	
4,937.0	0.07	316.82	4,935.4	-1.2	-60.2	-17.3	0.28	
4,962.0	0.05	354.78	4,960.4	-1.2	-60.2	-17.4	0.17	
4,987.0	0.22	265.80	4,985.4	-1.2	-60.2	-17.4	0.90	
5,012.0	1.06	233.64	5,010.4	-1.3	-60.5	-17.3	3.53	
5,037.0	1.17	237.22	5,035.4	-1.6	-60.9	-17.2	0.52	
5,062.0	1.21	234.87	5,060.4	-1.9	-61.3	-17.0	0.25	
5,087.0	1.27	233.67	5,085.4	-2.2	-61.8	-16.9	0.26	
5,112.0	1.34	237.42	5,110.4	-2.5	-62.2	-16.7	0.44	
5,137.0	1.91	236.86	5,135.4	-2.9	-62.8	-16.5	2.28	
5,162.0	2.90	239.09	5,160.3	-3.5	-63.7	-16.3	3.98	
5,187.0	3.84	241.85	5,185.3	-4.2	-65.0	-16.0	3.81	
5,212.0	4.75	242.84	5,210.2	-5.1	-66.6	-15.7	3.65	
5,237.0	5.51	243.41	5,235.1	-6.1	-68.6	-15.3	3.05	
5,262.0	6.38	245.56	5,260.0	-7.2	-71.0	-15.0	3.59	
5,287.0	7.05	247.50	5,284.8	-8.3	-73.7	-14.7	2.83	
5,312.0	7.37	248.97	5,309.6	-9.5	-76.6	-14.5	1.48	
5,337.0	7.74	250.16	5,334.4	-10.6	-79.7	-14.3	1.61	
5,362.0	7.96	250.62	5,359.2	-11.8	-82.9	-14.2	0.92	
5,387.0	8.51	252.18	5,383.9	-12.9	-86.3	-14.2	2.37	
5,412.0	9.21	253.67	5,408.6	-14.1	-89.9	-14.3	2.95	
5,437.0	9.72	254.47	5,433.3	-15.2	-93.9	-14.4	2.11	
5,462.0	10.49	255.45	5,457.9	-16.3	-98.1	-14.6	3.16	
5,487.0	11.53	255.21	5,482.4	-17.5	-102.8	-14.9	4.16	
5,512.0	12.59	254.92	5,506.9	-18.9	-107.8	-15.1	4.25	
5,537.0	13.42	255.13	5,531.2	-20.3	-113.2	-15.4	3.33	
5,562.0	13.88	255.49	5,555.5	-21.8	-118.9	-15.8	1.87	
5,587.0	14.40	255.52	5,579.8	-23.4	-124.9	-16.1	2.08	
5,612.0	15.16	255.57	5,603.9	-25.0	-131.0	-16.5	3.04	
5,637.0	15.98	255.70	5,628.0	-26.6	-137.5	-16.9	3.28	
5,662.0	16.69	256.26	5,652.0	-28.3	-144.4	-17.4	2.91	
5,687.0	17.62	256.18	5,675.9	-30.1	-151.5	-17.9	3.72	
5,712.0	18.74	255.57	5,699.7	-32.0	-159.1	-18.4	4.54	
5,737.0	19.95	254.64	5,723.3	-34.1	-167.1	-18.9	4.99	
5,762.0	20.94	253.94	5,746.7	-36.5	-175.5	-19.2	4.08	
5,787.0	21.74	252.69	5,770.0	-39.1	-184.2	-19.4	3.68	
5,812.0	22.50	251.07	5,793.1	-42.0	-193.1	-19.3	3.90	
5,837.0	23.78	249.87	5,816.1	-45.3	-202.4	-19.1	5.46	
5,862.0	24.72	249.00	5,838.9	-48.9	-212.0	-18.6	4.02	

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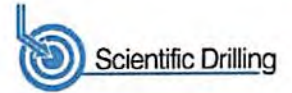
SEP 18 2017 COMPASS 5000.1 Build 70



Company:	Antero	Local Co-ordinate Reference:	Well Kelley Unit 1H
Project:	Doddridge County WV	TVD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Site:	Trent/Kelley/Chumley/Roleson/Guss/Denver	MD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Well:	Kelley Unit 1H	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)
5,887.0	25.55	248.45	5,861.5	-52.8	-221.9	-18.0	3.45
5,912.0	26.42	247.96	5,884.0	-56.8	-232.1	-17.2	3.58
5,937.0	27.30	247.70	5,906.3	-61.1	-242.5	-16.4	3.55
5,962.0	27.41	247.57	5,928.5	-65.5	-253.2	-15.5	0.50
5,987.0	26.70	247.23	5,950.8	-69.8	-263.7	-14.5	2.91
6,012.0	26.20	246.74	5,973.2	-74.2	-273.9	-13.5	2.18
6,037.0	25.99	246.21	5,995.6	-78.6	-284.0	-12.5	1.26
6,062.0	25.70	245.73	6,018.1	-83.0	-294.0	-11.3	1.43
6,087.0	25.21	245.05	6,040.7	-87.5	-303.7	-10.0	2.28
6,112.0	24.78	245.03	6,063.3	-91.9	-313.3	-8.7	1.72
6,137.0	24.81	245.38	6,086.0	-96.3	-322.8	-7.5	0.60
6,162.0	25.11	246.34	6,108.7	-100.7	-332.4	-6.3	2.02
6,187.0	25.29	248.28	6,131.3	-104.8	-342.3	-5.4	3.38
6,212.0	25.50	250.02	6,153.9	-108.6	-352.3	-4.9	3.10
6,237.0	26.08	251.49	6,176.4	-112.2	-362.5	-4.6	3.45
6,262.0	26.20	252.76	6,198.9	-115.5	-373.0	-4.6	2.29
6,287.0	25.94	253.37	6,221.3	-118.7	-383.5	-4.8	1.49
6,312.0	25.38	253.59	6,243.9	-121.8	-393.9	-5.1	2.27
6,337.0	24.73	253.16	6,266.5	-124.9	-404.1	-5.3	2.70
6,362.0	25.03	253.20	6,289.2	-127.9	-414.1	-5.5	1.20
6,387.0	25.45	253.40	6,311.8	-131.0	-424.3	-5.7	1.71
6,412.0	25.19	253.17	6,334.4	-134.0	-434.6	-5.9	1.11
6,437.0	25.32	253.31	6,357.0	-137.1	-444.8	-6.2	0.57
6,462.0	25.43	253.34	6,379.6	-140.2	-455.1	-6.4	0.44
6,487.0	24.89	253.14	6,402.2	-143.2	-465.2	-6.6	2.19
6,512.0	25.10	253.54	6,424.9	-146.3	-475.4	-6.8	1.08
6,537.0	25.68	254.68	6,447.5	-149.2	-485.7	-7.2	3.03
6,562.0	26.32	255.22	6,469.9	-152.1	-496.2	-7.7	2.73
6,587.0	26.73	255.54	6,492.3	-154.9	-507.1	-8.4	1.74
6,612.0	26.74	255.76	6,514.6	-157.7	-517.9	-9.1	0.40
6,637.0	26.46	255.60	6,537.0	-160.4	-528.8	-9.8	1.16
6,662.0	25.98	255.61	6,559.4	-163.2	-539.5	-10.4	1.92
6,687.0	25.77	255.09	6,581.9	-165.9	-550.0	-11.1	1.24
6,712.0	26.11	254.72	6,604.4	-168.8	-560.6	-11.6	1.51
6,737.0	26.28	254.44	6,626.8	-171.7	-571.2	-12.1	0.84
6,741.2	26.13	254.44	6,630.6	-172.2	-573.0	-12.1	3.56
6,843.0	25.33	253.91	6,722.3	-184.3	-615.6	-13.7	0.82
6,940.0	24.59	252.15	6,810.2	-196.2	-654.7	-14.4	1.08
7,004.0	23.78	247.82	6,868.6	-205.2	-679.3	-13.4	3.05
7,036.0	24.24	238.92	6,897.9	-211.0	-690.9	-11.5	11.40
7,068.0	25.51	230.19	6,926.9	-218.8	-701.9	-7.4	12.13
7,100.0	27.22	223.88	6,955.6	-228.5	-712.2	-1.4	10.25
7,133.0	29.15	218.25	6,984.7	-240.2	-722.4	6.7	9.95
7,165.0	31.43	212.88	7,012.3	-253.4	-731.8	16.3	11.06

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Project:	Doddridge County WV	TVD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Site:	Trent/Kelley/Chumley/Roleson/Guss/Denver	MD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Well:	Kelley Unit 1H	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)	
7,167.0	31.53	212.44	7,014.0	-254.2	-732.4	17.0	12.34	
Middlesex								
7,197.0	33.12	206.19	7,039.4	-268.2	-740.2	27.9	12.34	
7,229.0	35.41	201.72	7,065.8	-284.7	-747.5	41.3	10.63	
7,261.0	37.34	196.44	7,091.6	-302.6	-753.7	56.5	11.49	
7,293.0	40.07	193.14	7,116.6	-322.0	-758.7	73.3	10.69	
7,325.0	42.20	189.81	7,140.7	-342.6	-762.9	91.7	9.55	
7,345.0	43.26	188.08	7,155.4	-356.0	-765.0	103.8	7.91	
Burkett								
7,358.0	43.96	186.99	7,164.8	-364.9	-766.2	111.9	7.91	
7,388.0	47.09	184.59	7,185.8	-386.2	-768.3	131.5	11.89	
Tully								
7,390.0	47.30	184.44	7,187.1	-387.6	-768.5	132.8	11.89	
7,422.0	50.31	181.94	7,208.2	-411.7	-769.8	155.3	11.09	
7,454.0	53.75	179.62	7,227.9	-436.9	-770.1	179.2	12.17	
7,486.0	57.10	177.68	7,246.1	-463.2	-769.5	204.4	11.60	
7,518.0	60.35	176.83	7,262.7	-490.5	-768.2	230.8	10.41	
7,550.0	63.86	175.52	7,277.6	-518.7	-766.3	258.3	11.55	
7,583.0	67.75	173.85	7,291.2	-548.7	-763.5	287.6	12.66	
7,615.0	70.82	172.44	7,302.5	-578.4	-759.9	317.0	10.44	
7,616.0	70.93	172.40	7,302.8	-579.4	-759.8	317.9	11.86	
Marcellus								
7,647.0	74.43	171.21	7,312.0	-608.6	-755.6	347.1	11.86	
7,679.0	77.98	169.45	7,319.7	-639.3	-750.3	377.9	12.31	
7,711.0	81.21	167.82	7,325.4	-670.1	-744.1	409.1	11.27	
7,727.0	83.84	166.94	7,327.5	-685.6	-740.7	424.9	17.32	
7,789.0	89.52	162.85	7,331.1	-745.3	-724.6	486.7	11.28	
7,806.0	89.63	163.42	7,331.2	-761.6	-719.6	503.7	3.41	
7,903.0	90.00	162.24	7,331.6	-854.3	-691.0	600.7	1.27	
7,999.0	90.30	161.86	7,331.3	-945.6	-661.4	696.7	0.50	
8,095.0	89.06	160.00	7,331.8	-1,036.3	-630.0	792.7	2.33	
8,191.0	87.88	160.10	7,334.4	-1,126.5	-597.3	888.6	1.23	
8,287.0	88.02	161.69	7,337.8	-1,217.2	-565.9	984.5	1.66	
8,384.0	89.56	163.73	7,339.9	-1,309.8	-537.1	1,081.4	2.63	
8,480.0	89.73	162.28	7,340.5	-1,401.6	-509.0	1,177.4	1.52	
8,577.0	88.93	161.13	7,341.6	-1,493.7	-478.6	1,274.4	1.44	
8,673.0	89.93	160.72	7,342.6	-1,584.4	-447.2	1,370.4	1.13	
8,770.0	88.76	164.24	7,343.7	-1,676.9	-418.0	1,467.4	3.82	
8,866.0	90.60	162.64	7,344.2	-1,768.9	-390.6	1,563.3	2.54	
8,962.0	89.12	160.79	7,344.5	-1,860.0	-360.5	1,659.3	2.47	
9,058.0	88.05	160.84	7,346.8	-1,950.6	-329.0	1,755.3	1.12	
9,155.0	88.76	162.71	7,349.5	-2,042.7	-298.7	1,852.2	2.06	
9,251.0	89.73	162.49	7,350.8	-2,134.3	-270.0	1,948.2	1.04	
9,348.0	89.43	161.15	7,351.5	-2,226.5	-239.7	2,045.2	1.42	
9,444.0	89.93	163.30	7,352.0	-2,317.9	-210.0	2,141.2	2.30	

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Company:	Antero	Local Co-ordinate Reference:	Well Kelley Unit 1H
Project:	Doddridge County WV	TVD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Site:	Trent/Kelley/Chumley/Roleson/Guss/Denver	MD Reference:	Frontier 22: 1248'+ 25' RKB @ 1273.0usft
Well:	Kelley Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Oklahoma District

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
9,540.0	89.76	161.49	7,352.3	-2,409.4	-181.4	2,237.2	1.89
9,637.0	90.91	162.76	7,351.7	-2,501.7	-151.6	2,334.2	1.77
9,733.0	90.44	161.35	7,350.6	-2,593.0	-122.0	2,430.2	1.55
9,829.0	89.60	162.39	7,350.6	-2,684.3	-92.1	2,526.2	1.39
9,925.0	89.26	161.78	7,351.5	-2,775.6	-62.6	2,622.2	0.73
10,021.0	91.14	161.07	7,351.2	-2,866.6	-32.0	2,718.2	2.09
10,118.0	90.64	163.51	7,349.7	-2,959.0	-2.5	2,815.1	2.57
10,214.0	90.30	162.65	7,348.9	-3,050.8	25.4	2,911.1	0.96
10,310.0	90.03	162.93	7,348.6	-3,142.5	53.8	3,007.1	0.41
10,406.0	88.69	163.74	7,349.7	-3,234.5	81.3	3,103.1	1.63
10,503.0	89.83	161.92	7,350.9	-3,327.2	110.0	3,200.1	2.21
10,599.0	88.89	162.37	7,352.0	-3,418.5	139.4	3,296.1	1.09
10,695.0	90.74	162.45	7,352.3	-3,510.0	168.4	3,392.0	1.93
10,791.0	89.16	159.03	7,352.4	-3,600.6	200.1	3,488.0	3.92
10,888.0	89.87	161.03	7,353.2	-3,691.8	233.2	3,584.9	2.19
10,984.0	91.81	162.99	7,351.8	-3,783.1	262.8	3,680.9	2.87
11,080.0	89.63	161.58	7,350.6	-3,874.5	292.0	3,776.9	2.70
11,177.0	90.94	162.11	7,350.1	-3,966.7	322.3	3,873.9	1.46
11,274.0	90.13	163.44	7,349.2	-4,059.3	351.0	3,970.9	1.61
11,370.0	88.62	161.55	7,350.3	-4,150.9	379.9	4,066.9	2.52
11,466.0	89.09	161.15	7,352.2	-4,241.8	410.6	4,162.8	0.64
11,563.0	90.50	163.49	7,352.5	-4,334.2	440.0	4,259.8	2.82
11,659.0	89.46	162.69	7,352.6	-4,426.1	467.9	4,355.8	1.37
11,756.0	90.40	162.35	7,352.7	-4,518.6	497.1	4,452.8	1.03
11,852.0	90.10	162.09	7,352.3	-4,610.0	526.4	4,548.8	0.41
11,947.0	89.93	160.68	7,352.2	-4,700.0	556.7	4,643.8	1.49
12,043.0	89.80	161.70	7,352.5	-4,790.9	587.7	4,739.8	1.07
12,138.0	90.54	160.55	7,352.2	-4,880.8	618.4	4,834.8	1.44
12,234.0	90.54	162.04	7,351.3	-4,971.7	649.2	4,930.7	1.55
12,331.0	90.80	161.14	7,350.1	-5,063.7	679.8	5,027.7	0.97
12,427.0	89.46	159.18	7,349.9	-5,154.0	712.4	5,123.7	2.47
12,513.0	89.52	158.72	7,350.7	-5,234.3	743.3	5,209.5	0.54
12,572.0	89.52	158.72	7,351.2	-5,289.3	764.7	5,268.4	0.00

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,167.0	7,014.0	-254.2	-732.4	Middlesex
7,345.0	7,155.4	-356.0	-765.0	Burkett
7,388.0	7,185.8	-386.2	-768.3	Tully
7,616.0	7,302.8	-579.4	-759.8	Marcellus

Checked By: _____ Approved By: _____ Date: _____

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