



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Murphy Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Site:	Dotson Holland Pad: Alder/Amanda/Murphy/Zellerback	MD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Well:	Murphy Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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	Dotson Holland Pad: Alder/Amanda/Murphy/Zellerback, Site Center: Murphy Unit 1H				
Site Position:		Northing:	14,261,441.71 usft	Latitude:	39° 16' 23.598 N
From:	Map	Easting:	1,676,370.19 usft	Longitude:	80° 52' 22.648 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.08 °

Well	Murphy Unit 1H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,261,441.71 usft	Latitude:	39° 16' 23.598 N
	+E/-W	0.0 usft	Easting:	1,676,370.19 usft	Longitude:	80° 52' 22.648 W
Position Uncertainty		2.0 usft	Wellhead Elevation:	1,008.0 usft	Ground Level:	989.0 usft

Wellbore	Original Wellpath				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	12/12/2015	-8.47	66.71	52,096
	BGGM2015	2/22/2016	-8.48	66.69	52,073

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		342.04

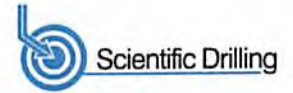
Survey Program	Date	3/8/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	5,625.0	Survey #8 - Final Def Gyro (Original Wellp	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,650.0	15,209.0	Survey #9 - MWD (Original Wellpath)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.04	117.73	100.0	0.0	0.0	0.0	0.04	0.04	0.00
First Gyro @ 100									
125.0	0.18	25.71	125.0	0.0	0.1	0.0	0.74	0.56	-368.08
150.0	0.10	39.44	150.0	0.1	0.1	0.0	0.34	-0.32	54.92
175.0	0.11	325.07	175.0	0.1	0.1	0.1	0.51	0.04	-297.48
200.0	0.19	223.93	200.0	0.1	0.0	0.1	0.95	0.32	-404.55
225.0	0.20	226.40	225.0	0.0	0.0	0.0	0.05	0.04	9.88

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Well:	Murphy Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
250.0	0.09	221.66	250.0	0.0	-0.1	0.0	0.44	-0.44	-18.96
275.0	0.18	195.15	275.0	-0.1	-0.1	0.0	0.43	0.36	-106.04
300.0	0.06	168.58	300.0	-0.1	-0.1	-0.1	0.52	-0.48	-106.28
325.0	0.33	196.41	325.0	-0.2	-0.1	-0.2	1.11	1.08	111.32
350.0	0.07	94.89	350.0	-0.3	-0.1	-0.2	1.40	-1.04	-406.08
375.0	0.24	198.97	375.0	-0.3	-0.1	-0.3	1.06	0.68	416.32
400.0	0.18	4.77	400.0	-0.3	-0.1	-0.3	1.67	-0.24	663.20
425.0	0.16	345.31	425.0	-0.3	-0.1	-0.2	0.24	-0.08	-77.84
450.0	0.21	296.00	450.0	-0.2	-0.2	-0.1	0.64	0.20	-197.24
475.0	1.18	220.37	475.0	-0.4	-0.4	-0.2	4.58	3.88	-302.52
500.0	1.69	217.88	500.0	-0.9	-0.8	-0.6	2.05	2.04	-9.96
525.0	2.17	216.03	525.0	-1.5	-1.3	-1.1	1.94	1.92	-7.40
550.0	2.80	210.08	550.0	-2.4	-1.9	-1.8	2.72	2.52	-23.80
575.0	3.87	206.78	574.9	-3.7	-2.6	-2.8	4.35	4.28	-13.20
600.0	4.34	205.25	599.8	-5.3	-3.3	-4.0	1.93	1.88	-6.12
625.0	4.56	204.60	624.8	-7.1	-4.2	-5.5	0.90	0.88	-2.60
650.0	4.67	204.40	649.7	-8.9	-5.0	-7.0	0.44	0.44	-0.80
675.0	5.24	203.09	674.6	-10.9	-5.9	-8.6	2.32	2.28	-5.24
700.0	5.52	203.31	699.5	-13.1	-6.8	-10.3	1.12	1.12	0.88
725.0	5.83	202.87	724.4	-15.3	-7.8	-12.2	1.25	1.24	-1.76
750.0	5.62	203.31	749.2	-17.6	-8.7	-14.1	0.86	-0.84	1.76
775.0	5.86	201.47	774.1	-19.9	-9.7	-16.0	1.21	0.96	-7.36
800.0	5.56	201.86	799.0	-22.3	-10.6	-17.9	1.21	-1.20	1.56
825.0	5.20	201.36	823.9	-24.4	-11.5	-19.7	1.45	-1.44	-2.00
850.0	4.85	199.66	848.8	-26.5	-12.2	-21.4	1.52	-1.40	-6.80
875.0	4.47	199.12	873.7	-28.4	-12.9	-23.0	1.53	-1.52	-2.16
900.0	3.67	195.72	898.6	-30.1	-13.4	-24.5	3.34	-3.20	-13.60
925.0	3.32	195.71	923.6	-31.6	-13.9	-25.7	1.40	-1.40	-0.04
950.0	3.28	197.23	948.5	-32.9	-14.3	-26.9	0.38	-0.16	6.08
975.0	3.09	194.42	973.5	-34.3	-14.6	-28.1	0.98	-0.76	-11.24
1,000.0	2.57	197.36	998.5	-35.5	-15.0	-29.1	2.16	-2.08	11.76
1,025.0	2.49	198.66	1,023.5	-36.5	-15.3	-30.0	0.39	-0.32	5.20
1,050.0	2.22	200.19	1,048.4	-37.5	-15.7	-30.8	1.11	-1.08	6.12
1,075.0	2.04	199.11	1,073.4	-38.4	-16.0	-31.6	0.74	-0.72	-4.32
1,100.0	1.81	197.61	1,098.4	-39.1	-16.2	-32.2	0.94	-0.92	-6.00
1,125.0	1.65	201.24	1,123.4	-39.9	-16.5	-32.8	0.78	-0.64	14.52
1,150.0	1.57	201.66	1,148.4	-40.5	-16.7	-33.4	0.32	-0.32	1.68
1,175.0	1.32	201.31	1,173.4	-41.1	-17.0	-33.9	1.00	-1.00	-1.40
1,200.0	1.08	203.55	1,198.4	-41.6	-17.2	-34.3	0.98	-0.96	8.96
1,225.0	1.13	204.71	1,223.4	-42.0	-17.4	-34.6	0.22	0.20	4.64
1,250.0	1.04	202.09	1,248.4	-42.5	-17.6	-35.0	0.41	-0.36	-10.48
1,275.0	0.81	201.54	1,273.4	-42.8	-17.7	-35.3	0.92	-0.92	0.92
1,300.0	0.81	201.77	1,298.4	-43.2	-17.8	-35.6	0.01	0.00	0.92



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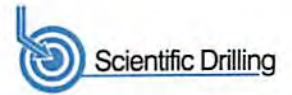
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,325.0	0.69	206.23	1,323.3	-43.5	-18.0	-35.8	0.53	-0.48	17.84
1,350.0	0.56	189.16	1,348.3	-43.7	-18.1	-36.0	0.90	-0.52	-68.28
1,375.0	0.61	204.97	1,373.3	-44.0	-18.1	-36.2	0.67	0.20	63.24
1,400.0	0.51	196.80	1,398.3	-44.2	-18.2	-36.4	0.51	-0.40	-32.68
1,425.0	0.58	192.65	1,423.3	-44.4	-18.3	-36.6	0.32	0.28	-16.60
1,450.0	0.58	192.63	1,448.3	-44.7	-18.3	-36.8	0.00	0.00	-0.08
1,475.0	0.36	193.53	1,473.3	-44.9	-18.4	-37.0	0.88	-0.88	3.60
1,500.0	0.22	192.79	1,498.3	-45.0	-18.4	-37.1	0.56	-0.56	-2.96
1,525.0	0.31	200.42	1,523.3	-45.1	-18.5	-37.2	0.39	0.36	30.52
1,550.0	0.43	199.29	1,548.3	-45.2	-18.5	-37.3	0.48	0.48	-4.52
1,575.0	0.22	209.63	1,573.3	-45.4	-18.6	-37.4	0.87	-0.84	41.36
1,600.0	0.28	185.93	1,598.3	-45.5	-18.6	-37.5	0.47	0.24	-94.80
1,625.0	0.17	182.25	1,623.3	-45.6	-18.6	-37.6	0.44	-0.44	-14.72
1,650.0	0.11	221.46	1,648.3	-45.6	-18.6	-37.7	0.44	-0.24	156.84
1,675.0	0.23	198.31	1,673.3	-45.7	-18.6	-37.7	0.54	0.48	-92.60
1,700.0	0.16	234.38	1,698.3	-45.8	-18.7	-37.8	0.55	-0.28	144.28
1,725.0	0.21	230.49	1,723.3	-45.8	-18.8	-37.8	0.21	0.20	-15.56
1,750.0	0.19	257.12	1,748.3	-45.9	-18.8	-37.8	0.38	-0.08	106.52
1,775.0	0.32	236.60	1,773.3	-45.9	-18.9	-37.8	0.63	0.52	-82.08
1,800.0	0.20	259.48	1,798.3	-45.9	-19.0	-37.8	0.63	-0.48	91.52
1,825.0	0.05	292.67	1,823.3	-46.0	-19.1	-37.8	0.64	-0.60	132.76
1,850.0	0.17	266.57	1,848.3	-46.0	-19.1	-37.8	0.51	0.48	-104.40
1,875.0	0.18	246.03	1,873.3	-46.0	-19.2	-37.8	0.25	0.04	-82.16
1,900.0	0.12	252.99	1,898.3	-46.0	-19.3	-37.8	0.25	-0.24	27.84
1,925.0	0.07	231.85	1,923.3	-46.0	-19.3	-37.8	0.24	-0.20	-84.56
1,950.0	0.12	261.15	1,948.3	-46.0	-19.3	-37.8	0.27	0.20	117.20
1,975.0	0.07	333.77	1,973.3	-46.0	-19.4	-37.8	0.48	-0.20	290.48
2,000.0	0.14	273.03	1,998.3	-46.0	-19.4	-37.8	0.49	0.28	-242.96
2,025.0	0.19	290.88	2,023.3	-46.0	-19.5	-37.7	0.28	0.20	71.40
2,050.0	0.21	263.47	2,048.3	-46.0	-19.6	-37.7	0.39	0.08	-109.64
2,075.0	0.08	248.78	2,073.3	-46.0	-19.6	-37.7	0.54	-0.52	-58.76
2,100.0	0.09	3.21	2,098.3	-46.0	-19.6	-37.7	0.57	0.04	457.72
2,125.0	0.09	286.09	2,123.3	-45.9	-19.7	-37.6	0.45	0.00	-308.48
2,150.0	0.26	323.08	2,148.3	-45.9	-19.7	-37.6	0.78	0.68	147.96
2,175.0	0.11	323.73	2,173.3	-45.8	-19.8	-37.5	0.60	-0.60	2.60
2,200.0	0.23	266.66	2,198.3	-45.8	-19.8	-37.5	0.77	0.48	-228.28
2,225.0	0.14	295.81	2,223.3	-45.8	-19.9	-37.4	0.51	-0.36	116.60
2,250.0	0.20	292.20	2,248.3	-45.8	-20.0	-37.4	0.24	0.24	-14.00
2,275.0	0.03	216.78	2,273.3	-45.8	-20.0	-37.4	0.78	-0.68	-301.68
2,300.0	0.17	358.58	2,298.3	-45.7	-20.0	-37.3	0.78	0.56	567.20
2,325.0	0.27	306.40	2,323.3	-45.7	-20.1	-37.2	0.85	0.40	-208.72
2,350.0	0.16	287.75	2,348.3	-45.6	-20.1	-37.2	0.52	-0.44	-74.60

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Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,375.0	0.13	243.92	2,373.3	-45.6	-20.2	-37.2	0.45	-0.12	-175.32
2,400.0	0.15	247.67	2,398.3	-45.6	-20.3	-37.2	0.09	0.08	15.00
2,425.0	0.24	301.13	2,423.3	-45.6	-20.3	-37.1	0.77	0.36	213.84
2,450.0	0.33	333.03	2,448.3	-45.5	-20.4	-37.0	0.72	0.36	127.60
2,475.0	0.37	310.07	2,473.3	-45.4	-20.5	-36.9	0.58	0.16	-91.84
2,500.0	0.32	313.92	2,498.3	-45.3	-20.6	-36.7	0.22	-0.20	15.40
2,525.0	0.28	319.10	2,523.3	-45.2	-20.7	-36.6	0.19	-0.16	20.72
2,550.0	0.27	310.30	2,548.3	-45.1	-20.8	-36.5	0.17	-0.04	-35.20
2,575.0	0.36	305.99	2,573.3	-45.1	-20.9	-36.4	0.37	0.36	-17.24
2,600.0	0.38	305.80	2,598.3	-45.0	-21.0	-36.3	0.08	0.08	-0.76
2,625.0	0.52	301.82	2,623.3	-44.9	-21.2	-36.1	0.57	0.56	-15.92
2,650.0	0.51	300.88	2,648.3	-44.7	-21.4	-36.0	0.05	-0.04	-3.76
2,675.0	0.65	300.98	2,673.3	-44.6	-21.6	-35.8	0.56	0.56	0.40
2,700.0	0.77	301.43	2,698.3	-44.4	-21.9	-35.5	0.48	0.48	1.80
2,725.0	0.89	303.12	2,723.3	-44.2	-22.2	-35.3	0.49	0.48	6.76
2,750.0	0.86	301.34	2,748.3	-44.0	-22.5	-35.0	0.16	-0.12	-7.12
2,775.0	0.95	301.02	2,773.3	-43.8	-22.8	-34.7	0.36	0.36	-1.28
2,800.0	0.95	303.92	2,798.3	-43.6	-23.2	-34.3	0.19	0.00	11.60
2,825.0	1.00	302.68	2,823.3	-43.4	-23.5	-34.0	0.22	0.20	-4.96
2,850.0	0.99	305.33	2,848.3	-43.1	-23.9	-33.7	0.19	-0.04	10.60
2,875.0	0.97	303.36	2,873.3	-42.9	-24.3	-33.3	0.16	-0.08	-7.88
2,900.0	0.95	302.40	2,898.3	-42.7	-24.6	-33.0	0.10	-0.08	-3.84
2,925.0	0.83	303.79	2,923.3	-42.5	-24.9	-32.7	0.49	-0.48	5.56
2,950.0	0.88	302.11	2,948.3	-42.3	-25.2	-32.4	0.22	0.20	-6.72
2,975.0	0.90	297.19	2,973.3	-42.1	-25.6	-32.1	0.32	0.08	-19.68
3,000.0	0.80	305.37	2,998.3	-41.9	-25.9	-31.8	0.63	-0.40	32.72
3,025.0	0.82	302.16	3,023.3	-41.7	-26.2	-31.6	0.20	0.08	-12.84
3,050.0	0.77	302.26	3,048.3	-41.5	-26.5	-31.3	0.20	-0.20	0.40
3,075.0	0.80	302.07	3,073.3	-41.3	-26.8	-31.0	0.12	0.12	-0.76
3,100.0	0.76	295.19	3,098.3	-41.1	-27.1	-30.8	0.41	-0.16	-27.52
3,125.0	0.75	300.68	3,123.3	-41.0	-27.4	-30.6	0.29	-0.04	21.96
3,150.0	0.75	300.38	3,148.3	-40.8	-27.7	-30.3	0.02	0.00	-1.20
3,175.0	0.88	305.04	3,173.3	-40.6	-27.9	-30.0	0.58	0.52	18.64
3,200.0	0.78	302.84	3,198.3	-40.4	-28.2	-29.8	0.42	-0.40	-8.80
3,225.0	0.76	305.88	3,223.3	-40.2	-28.5	-29.5	0.18	-0.08	12.16
3,250.0	0.77	303.21	3,248.3	-40.1	-28.8	-29.2	0.15	0.04	-10.68
3,275.0	0.81	305.00	3,273.3	-39.9	-29.1	-29.0	0.19	0.16	7.16
3,300.0	0.78	306.73	3,298.3	-39.7	-29.4	-28.7	0.15	-0.12	6.92
3,325.0	0.86	304.92	3,323.3	-39.4	-29.7	-28.4	0.34	0.32	-7.24
3,350.0	0.88	296.51	3,348.3	-39.3	-30.0	-28.1	0.52	0.08	-33.64
3,375.0	0.82	305.45	3,373.3	-39.1	-30.3	-27.8	0.58	-0.24	35.76
3,400.0	0.84	305.32	3,398.3	-38.9	-30.6	-27.5	0.08	0.08	-0.52
3,425.0	0.83	302.74	3,423.2	-38.7	-30.9	-27.2	0.16	0.16	-10.32

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Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Murphy Unit 1H
Project:	Doddridge County WW	TVD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Site:	Dotson Holland Pad: Alder/Amanda/Murphy/Zellerback	MD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Well:	Murphy Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,450.0	0.81	303.93	3,448.2	-38.5	-31.2	-27.0	0.11	-0.08	4.76
3,475.0	0.82	300.29	3,473.2	-38.3	-31.5	-26.7	0.21	0.04	-14.56
3,500.0	0.85	300.22	3,498.2	-38.1	-31.8	-26.4	0.12	0.12	-0.28
3,525.0	0.83	297.94	3,523.2	-37.9	-32.1	-26.2	0.16	-0.08	-9.12
3,550.0	0.79	298.45	3,548.2	-37.7	-32.4	-25.9	0.16	-0.16	2.04
3,575.0	0.81	297.00	3,573.2	-37.6	-32.8	-25.6	0.11	0.08	-5.80
3,600.0	0.81	298.31	3,598.2	-37.4	-33.1	-25.4	0.07	0.00	5.24
3,625.0	0.82	300.87	3,623.2	-37.2	-33.4	-25.1	0.15	0.04	10.24
3,650.0	0.84	297.31	3,648.2	-37.1	-33.7	-24.9	0.22	0.08	-14.24
3,675.0	0.93	297.72	3,673.2	-36.9	-34.0	-24.6	0.36	0.36	1.64
3,700.0	0.85	298.24	3,698.2	-36.7	-34.4	-24.3	0.32	-0.32	2.08
3,725.0	0.86	300.32	3,723.2	-36.5	-34.7	-24.0	0.13	0.04	8.32
3,750.0	0.83	301.83	3,748.2	-36.3	-35.0	-23.8	0.15	-0.12	6.04
3,775.0	0.91	301.58	3,773.2	-36.1	-35.3	-23.5	0.32	0.32	-1.00
3,800.0	0.91	297.80	3,798.2	-35.9	-35.7	-23.2	0.24	0.00	-15.12
3,825.0	0.82	297.31	3,823.2	-35.8	-36.0	-22.9	0.36	-0.36	-1.96
3,850.0	0.91	296.88	3,848.2	-35.6	-36.4	-22.6	0.36	0.36	-1.72
3,875.0	0.88	298.57	3,873.2	-35.4	-36.7	-22.4	0.16	-0.12	6.76
3,900.0	0.81	302.46	3,898.2	-35.2	-37.0	-22.1	0.36	-0.28	15.56
3,925.0	0.99	301.66	3,923.2	-35.0	-37.4	-21.8	0.72	0.72	-3.20
3,950.0	1.15	307.56	3,948.2	-34.7	-37.7	-21.4	0.78	0.64	23.60
3,975.0	1.25	311.23	3,973.2	-34.4	-38.1	-21.0	0.50	0.40	14.68
4,000.0	1.30	310.62	3,998.2	-34.0	-38.6	-20.5	0.21	0.20	-2.44
4,025.0	1.30	306.14	4,023.2	-33.7	-39.0	-20.0	0.41	0.00	-17.92
4,050.0	1.29	308.98	4,048.2	-33.4	-39.5	-19.6	0.26	-0.04	11.36
4,075.0	1.26	310.44	4,073.2	-33.0	-39.9	-19.1	0.18	-0.12	5.84
4,100.0	1.26	313.12	4,098.2	-32.6	-40.3	-18.6	0.24	0.00	10.72
4,125.0	1.32	311.83	4,123.1	-32.2	-40.7	-18.1	0.27	0.24	-5.16
4,150.0	1.42	317.37	4,148.1	-31.8	-41.1	-17.6	0.66	0.40	22.16
4,175.0	1.26	314.67	4,173.1	-31.4	-41.5	-17.1	0.69	-0.64	-10.80
4,200.0	1.35	312.66	4,198.1	-31.0	-41.9	-16.6	0.40	0.36	-8.04
4,225.0	1.28	317.12	4,223.1	-30.6	-42.4	-16.1	0.50	-0.28	17.84
4,250.0	1.25	319.04	4,248.1	-30.2	-42.7	-15.6	0.21	-0.12	7.68
4,275.0	1.24	313.54	4,273.1	-29.8	-43.1	-15.1	0.48	-0.04	-22.00
4,300.0	1.28	318.77	4,298.1	-29.4	-43.5	-14.6	0.49	0.16	20.92
4,325.0	1.24	321.05	4,323.1	-29.0	-43.8	-14.1	0.26	-0.16	9.12
4,350.0	1.26	327.84	4,348.1	-28.5	-44.1	-13.5	0.60	0.08	27.16
4,375.0	1.25	325.31	4,373.1	-28.1	-44.4	-13.0	0.23	-0.04	-10.12
4,400.0	1.28	323.88	4,398.1	-27.6	-44.8	-12.5	0.17	0.12	-5.72
4,425.0	1.22	331.88	4,423.1	-27.2	-45.1	-12.0	0.74	-0.24	32.00
4,450.0	1.26	327.39	4,448.1	-26.7	-45.3	-11.4	0.42	0.16	-17.96
4,475.0	1.31	326.61	4,473.1	-26.2	-45.6	-10.9	0.21	0.20	-3.12

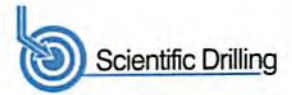
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Scientific Drilling International
Survey Report



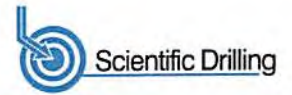
Company:	Antero Resources	Local Co-ordinate Reference:	Well Murphy Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Site:	Dotson Holland Pad: Alder/Amanda/Murphy/Zellerback	MD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Well:	Murphy Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500.0	1.19	329.85	4,498.1	-25.8	-45.9	-10.4	0.56	-0.48	12.96
4,525.0	1.33	334.15	4,523.0	-25.3	-46.2	-9.8	0.68	0.56	17.20
4,550.0	1.38	328.33	4,548.0	-24.8	-46.5	-9.2	0.59	0.20	-23.28
4,575.0	1.31	333.78	4,573.0	-24.3	-46.8	-8.7	0.58	-0.28	21.80
4,600.0	1.34	332.17	4,598.0	-23.8	-47.0	-8.1	0.19	0.12	-6.44
4,625.0	1.43	331.77	4,623.0	-23.2	-47.3	-7.5	0.36	0.36	-1.60
4,650.0	1.39	330.48	4,648.0	-22.7	-47.6	-6.9	0.20	-0.16	-5.16
4,675.0	1.33	338.08	4,673.0	-22.1	-47.9	-6.3	0.76	-0.24	30.40
4,700.0	1.36	330.98	4,698.0	-21.6	-48.1	-5.7	0.88	0.12	-28.40
4,725.0	1.40	332.26	4,723.0	-21.1	-48.4	-5.1	0.20	0.16	5.12
4,750.0	1.47	334.16	4,748.0	-20.5	-48.7	-4.5	0.34	0.28	7.60
4,775.0	1.56	333.73	4,773.0	-19.9	-49.0	-3.9	0.36	0.36	-1.72
4,800.0	1.41	330.55	4,798.0	-19.4	-49.3	-3.2	0.68	-0.60	-12.72
4,825.0	1.53	335.24	4,823.0	-18.8	-49.6	-2.6	0.68	0.48	18.76
4,850.0	1.59	333.69	4,847.9	-18.2	-49.8	-1.9	0.29	0.24	-6.20
4,875.0	1.48	336.22	4,872.9	-17.6	-50.1	-1.3	0.52	-0.44	10.12
4,900.0	1.57	335.33	4,897.9	-17.0	-50.4	-0.6	0.37	0.36	-3.56
4,925.0	1.53	331.55	4,922.9	-16.4	-50.7	0.1	0.44	-0.16	-15.12
4,950.0	1.56	329.48	4,947.9	-15.8	-51.0	0.7	0.25	0.12	-8.28
4,975.0	1.65	323.31	4,972.9	-15.2	-51.4	1.4	0.78	0.36	-24.68
5,000.0	1.90	285.87	4,997.9	-14.8	-52.0	2.0	4.65	1.00	-149.76
5,025.0	2.67	259.41	5,022.9	-14.8	-53.0	2.3	5.15	3.08	-105.84
5,050.0	3.81	248.42	5,047.8	-15.2	-54.4	2.3	5.17	4.56	-43.96
5,075.0	5.10	235.54	5,072.8	-16.1	-56.0	1.9	6.50	5.16	-51.52
5,100.0	7.02	228.34	5,097.6	-17.8	-58.1	1.0	8.25	7.68	-28.80
5,125.0	8.21	225.92	5,122.4	-20.0	-60.5	-0.4	4.93	4.76	-9.68
5,150.0	8.97	224.98	5,147.1	-22.7	-63.2	-2.1	3.09	3.04	-3.76
5,175.0	9.98	222.01	5,171.8	-25.6	-66.0	-4.0	4.49	4.04	-11.88
5,200.0	10.37	221.27	5,196.4	-28.9	-68.9	-6.3	1.65	1.56	-2.96
5,225.0	10.70	220.00	5,221.0	-32.4	-71.9	-8.7	1.61	1.32	-5.08
5,250.0	11.13	218.28	5,245.5	-36.1	-74.9	-11.2	2.16	1.72	-6.88
5,275.0	11.56	217.56	5,270.0	-40.0	-77.9	-14.0	1.81	1.72	-2.88
5,300.0	11.88	216.94	5,294.5	-44.0	-81.0	-16.9	1.38	1.28	-2.48
5,325.0	12.21	216.89	5,318.9	-48.2	-84.1	-19.9	1.32	1.32	-0.20
5,350.0	12.39	215.92	5,343.4	-52.5	-87.3	-23.0	1.10	0.72	-3.88
5,375.0	12.16	215.47	5,367.8	-56.8	-90.4	-26.1	1.00	-0.92	-1.80
5,400.0	12.08	211.64	5,392.2	-61.2	-93.3	-29.4	3.23	-0.32	-15.32
5,425.0	12.63	210.45	5,416.7	-65.7	-96.1	-32.9	2.42	2.20	-4.76
5,450.0	13.32	209.67	5,441.0	-70.6	-98.9	-36.7	2.85	2.76	-3.12
5,475.0	14.35	208.74	5,465.3	-75.8	-101.8	-40.7	4.21	4.12	-3.72
5,500.0	15.49	208.66	5,489.5	-81.5	-104.9	-45.1	4.56	4.56	-0.32
5,525.0	16.89	208.06	5,513.5	-87.6	-108.2	-50.0	5.64	5.60	-2.40
5,550.0	18.01	207.61	5,537.3	-94.2	-111.7	-55.2	4.51	4.48	-1.80

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Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Murphy Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Site:	Dotson Holland Pad: Alder/Amanda/Murphy/Zellerback	MD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Well:	Murphy Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,575.0	19.03	207.82	5,561.0	-101.3	-115.4	-60.7	4.09	4.08	0.84	
5,600.0	19.06	207.16	5,584.7	-108.5	-119.1	-66.5	0.87	0.12	-2.64	
5,625.0	18.74	204.56	5,608.3	-115.8	-122.7	-72.3	3.60	-1.28	-10.40	
Last Gyro @ 5625										
5,650.0	18.35	201.49	5,632.0	-123.1	-125.8	-78.3	4.21	-1.56	-12.28	
Fist SDI MWD @ 5650										
5,695.0	19.48	199.78	5,674.6	-136.7	-130.9	-89.7	2.80	2.51	-3.80	
5,740.0	20.96	198.64	5,716.8	-151.4	-136.0	-102.1	3.40	3.29	-2.53	
5,770.0	22.17	198.62	5,744.7	-161.9	-139.6	-111.0	4.03	4.03	-0.07	
5,800.0	23.31	199.15	5,772.4	-172.8	-143.3	-120.2	3.86	3.80	1.77	
5,829.0	24.16	199.23	5,798.9	-183.9	-147.1	-129.5	2.93	2.93	0.28	
5,859.0	23.38	202.51	5,826.4	-195.2	-151.4	-139.0	5.12	-2.60	10.93	
5,889.0	21.43	210.15	5,854.1	-205.4	-156.5	-147.1	11.67	-6.50	25.47	
5,919.0	20.07	221.08	5,882.2	-214.0	-162.6	-153.5	13.66	-4.53	36.43	
5,949.0	19.48	232.66	5,910.4	-220.9	-170.0	-157.8	13.19	-1.97	38.60	
5,979.0	19.77	245.64	5,938.7	-226.1	-178.6	-160.0	14.54	0.97	43.27	
6,008.0	20.79	255.43	5,965.9	-229.4	-188.0	-160.2	12.20	3.52	33.76	
6,038.0	20.84	264.10	5,993.9	-231.3	-198.5	-158.8	10.26	0.17	28.90	
6,068.0	21.13	274.27	6,022.0	-231.4	-209.2	-155.6	12.16	0.97	33.90	
6,098.0	22.32	283.18	6,049.8	-229.7	-220.1	-150.6	11.67	3.97	29.70	
6,128.0	23.89	288.37	6,077.4	-226.5	-231.5	-144.1	8.57	5.23	17.30	
6,158.0	25.81	293.52	6,104.7	-222.0	-243.2	-136.2	9.64	6.40	17.17	
6,187.0	28.64	297.53	6,130.4	-216.3	-255.2	-127.0	11.62	9.76	13.83	
6,217.0	32.30	300.03	6,156.3	-208.9	-268.5	-115.9	12.91	12.20	8.33	
6,247.0	35.82	301.74	6,181.1	-200.3	-282.9	-103.3	12.16	11.73	5.70	
6,277.0	39.26	301.77	6,204.9	-190.7	-298.4	-89.4	11.47	11.47	0.10	
6,307.0	42.70	302.64	6,227.6	-180.2	-315.1	-74.2	11.62	11.47	2.90	
6,319.0	43.43	302.96	6,236.3	-175.7	-322.0	-67.9	6.36	6.09	2.65	
Middlesex @ 6319										
6,337.0	44.53	303.42	6,249.3	-168.9	-332.4	-58.2	6.36	6.10	2.56	
6,366.0	46.69	306.63	6,269.6	-157.0	-349.4	-41.6	10.86	7.45	11.07	
6,396.0	49.75	309.95	6,289.6	-143.1	-366.9	-23.0	13.12	10.20	11.07	
6,426.0	53.08	312.55	6,308.3	-127.7	-384.5	-2.9	13.00	11.10	8.67	
6,455.0	56.48	315.11	6,325.0	-111.3	-401.6	18.0	13.76	11.72	8.83	
6,485.0	59.50	317.95	6,340.9	-92.8	-419.1	41.0	12.87	10.07	9.47	
6,494.0	60.23	318.59	6,345.4	-87.0	-424.3	48.1	10.20	8.13	7.12	
Burket @ 6494										
6,515.0	61.95	320.05	6,355.6	-73.0	-436.3	65.0	10.20	8.18	6.95	
6,545.0	65.32	322.75	6,368.9	-52.0	-453.0	90.2	13.83	11.23	9.00	
6,565.0	67.37	323.95	6,376.9	-37.3	-464.0	107.6	11.60	10.22	5.98	
Tully @ 6565										
6,575.0	68.39	324.53	6,380.7	-29.8	-469.4	116.4	11.60	10.26	5.84	
6,605.0	71.13	325.78	6,391.1	-6.7	-485.5	143.3	9.93	9.13	4.17	



Company:	Antero Resources	Local Co-ordinate Reference:	Well Murphy Unit 1H
Project:	Doddridge County WW	TVD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Site:	Dotson Holland Pad: Alder/Amanda/Murphy/Zellerback	MD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Well:	Murphy Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
6,635.0	73.60	327.10	6,400.2	17.1	-501.3	170.8	9.24	8.23	4.40	
6,655.0	75.31	327.71	6,405.5	33.3	-511.6	189.5	9.02	8.53	3.05	
Marcellus @ 6655										
6,665.0	76.16	328.01	6,408.0	41.5	-516.8	198.9	9.02	8.54	3.01	
6,695.0	79.67	329.20	6,414.3	66.6	-532.1	227.4	12.33	11.70	3.97	
6,724.0	82.68	330.16	6,418.7	91.3	-546.5	255.4	10.88	10.38	3.31	
6,754.0	84.77	330.79	6,422.0	117.3	-561.2	284.6	7.27	6.97	2.10	
6,770.0	85.85	331.46	6,423.3	131.2	-568.9	300.3	7.94	6.75	4.19	
6,815.0	89.11	331.83	6,425.3	170.8	-590.3	344.5	7.29	7.24	0.82	
-As Drilled LP @ 6815 MD / 6425 TVD										
6,860.0	90.19	333.18	6,425.5	210.7	-611.1	388.8	3.84	2.40	3.00	
6,904.0	91.20	335.03	6,425.0	250.3	-630.3	432.4	4.79	2.30	4.20	
6,994.0	90.39	336.58	6,423.8	332.4	-667.1	521.9	1.94	-0.90	1.72	
7,083.0	89.67	338.80	6,423.7	414.7	-700.9	610.6	2.62	-0.81	2.49	
7,173.0	90.27	341.78	6,423.8	499.4	-731.3	700.6	3.38	0.67	3.31	
7,262.0	90.61	342.31	6,423.1	584.1	-758.7	789.6	0.71	0.36	0.60	
7,352.0	90.21	342.65	6,422.4	669.9	-785.6	879.6	0.58	-0.44	0.38	
7,441.0	90.45	342.59	6,421.9	754.8	-812.4	968.5	0.28	0.27	-0.07	
7,531.0	90.92	342.79	6,420.8	840.7	-839.2	1,058.5	0.57	0.52	0.22	
7,620.0	90.81	342.91	6,419.5	925.8	-865.4	1,147.5	0.18	-0.12	0.13	
7,709.0	90.58	341.40	6,418.4	1,010.5	-892.7	1,236.5	1.72	-0.26	-1.70	
7,799.0	91.23	342.34	6,417.0	1,096.0	-920.7	1,326.5	1.27	0.72	1.04	
7,889.0	91.23	341.49	6,415.1	1,181.5	-948.6	1,416.5	0.94	0.00	-0.94	
7,978.0	91.46	343.10	6,413.0	1,266.3	-975.7	1,505.4	1.83	0.26	1.81	
8,068.0	89.54	342.08	6,412.2	1,352.2	-1,002.6	1,595.4	2.42	-2.13	-1.13	
8,157.0	89.81	342.21	6,412.7	1,436.9	-1,029.9	1,684.4	0.34	0.30	0.15	
8,247.0	91.12	342.14	6,412.0	1,522.5	-1,057.4	1,774.4	1.46	1.46	-0.08	
8,336.0	91.09	340.65	6,410.3	1,606.9	-1,085.8	1,863.4	1.67	-0.03	-1.67	
8,426.0	92.06	341.15	6,407.8	1,691.9	-1,115.3	1,953.3	1.21	1.08	0.56	
8,516.0	91.96	342.83	6,404.6	1,777.4	-1,143.1	2,043.3	1.87	-0.11	1.87	
8,605.0	91.32	343.14	6,402.1	1,862.5	-1,169.1	2,132.2	0.80	-0.72	0.35	
8,695.0	90.75	342.56	6,400.5	1,948.5	-1,195.6	2,222.2	0.90	-0.63	-0.64	
8,784.0	90.78	342.60	6,399.3	2,033.4	-1,222.3	2,311.2	0.06	0.03	0.04	
8,874.0	91.45	343.53	6,397.5	2,119.5	-1,248.5	2,401.2	1.27	0.74	1.03	
8,963.0	91.99	344.61	6,394.8	2,205.0	-1,272.9	2,490.1	1.36	0.61	1.21	
9,053.0	89.64	340.65	6,393.6	2,290.9	-1,299.8	2,580.0	5.12	-2.61	-4.40	
9,142.0	89.27	339.73	6,394.4	2,374.6	-1,329.9	2,669.0	1.11	-0.42	-1.03	
9,232.0	90.48	340.68	6,394.6	2,459.3	-1,360.4	2,758.9	1.71	1.34	1.06	
9,322.0	90.65	340.62	6,393.7	2,544.2	-1,390.2	2,848.9	0.20	0.19	-0.07	
9,411.0	91.35	343.28	6,392.2	2,628.8	-1,417.8	2,937.9	3.09	0.79	2.99	
9,501.0	90.98	342.37	6,390.3	2,714.8	-1,444.4	3,027.8	1.09	-0.41	-1.01	
9,590.0	90.04	342.57	6,389.5	2,799.6	-1,471.2	3,116.8	1.08	-1.06	0.22	
9,680.0	89.17	341.87	6,390.2	2,885.3	-1,498.6	3,206.8	0.97	-0.97	-0.78	

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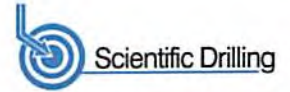
Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Murphy Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Site:	Dotson Holland Pad: Alder/Amanda/Murphy/Zellerback	MD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Well:	Murphy Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,769.0	89.27	341.76	6,391.4	2,969.9	-1,526.4	3,295.8	0.17	0.11	-0.12	
9,859.0	88.94	341.25	6,392.8	3,055.2	-1,555.0	3,385.8	0.67	-0.37	-0.57	
9,948.0	89.71	341.98	6,393.8	3,139.7	-1,583.0	3,474.8	1.19	0.87	0.82	
10,038.0	89.67	344.02	6,394.3	3,225.7	-1,609.3	3,564.8	2.27	-0.04	2.27	
10,127.0	89.10	343.30	6,395.3	3,311.1	-1,634.4	3,653.7	1.03	-0.64	-0.81	
10,217.0	89.07	342.50	6,396.7	3,397.1	-1,660.8	3,743.7	0.89	-0.03	-0.89	
10,307.0	89.07	341.44	6,398.2	3,482.7	-1,688.7	3,833.7	1.18	0.00	-1.18	
10,396.0	88.43	339.44	6,400.1	3,566.5	-1,718.5	3,922.6	2.36	-0.72	-2.25	
10,486.0	90.41	341.14	6,401.0	3,651.2	-1,748.8	4,012.6	2.90	2.20	1.89	
10,575.0	90.21	342.86	6,400.5	3,735.9	-1,776.3	4,101.6	1.95	-0.22	1.93	
10,665.0	89.87	341.30	6,400.5	3,821.5	-1,804.0	4,191.6	1.77	-0.38	-1.73	
10,754.0	90.88	340.96	6,399.9	3,905.7	-1,832.8	4,280.6	1.20	1.13	-0.38	
10,844.0	90.24	341.21	6,399.0	3,990.9	-1,862.0	4,370.5	0.76	-0.71	0.28	
10,934.0	88.97	341.82	6,399.6	4,076.2	-1,890.5	4,460.5	1.57	-1.41	0.68	
11,023.0	87.15	340.14	6,402.6	4,160.3	-1,919.5	4,549.5	2.78	-2.04	-1.89	
11,113.0	88.43	340.13	6,406.1	4,244.9	-1,950.1	4,639.3	1.42	1.42	-0.01	
11,202.0	89.50	342.17	6,407.7	4,329.1	-1,978.8	4,728.3	2.59	1.20	2.29	
11,292.0	90.17	345.12	6,408.0	4,415.4	-2,004.1	4,818.3	3.36	0.74	3.28	
11,381.0	90.24	345.15	6,407.7	4,501.5	-2,027.0	4,907.1	0.09	0.08	0.03	
11,471.0	89.60	344.36	6,407.8	4,588.3	-2,050.6	4,997.0	1.13	-0.71	-0.88	
11,560.0	88.80	343.72	6,409.0	4,673.9	-2,075.1	5,086.0	1.15	-0.90	-0.72	
11,650.0	89.37	343.00	6,410.5	4,760.1	-2,100.9	5,175.9	1.02	0.63	-0.80	
11,739.0	90.14	343.87	6,410.9	4,845.4	-2,126.3	5,264.9	1.31	0.87	0.98	
11,829.0	89.94	343.00	6,410.8	4,931.6	-2,151.9	5,354.9	0.99	-0.22	-0.97	
11,918.0	90.07	344.50	6,410.8	5,017.1	-2,176.8	5,443.8	1.69	0.15	1.69	
12,008.0	89.13	345.28	6,411.4	5,104.0	-2,200.3	5,533.7	1.36	-1.04	0.87	
12,097.0	89.20	343.44	6,412.7	5,189.7	-2,224.3	5,622.6	2.07	0.08	-2.07	
12,187.0	90.14	340.90	6,413.2	5,275.3	-2,251.8	5,712.6	3.01	1.04	-2.82	
12,277.0	90.04	339.69	6,413.1	5,360.1	-2,282.2	5,802.6	1.35	-0.11	-1.34	
12,366.0	89.80	337.96	6,413.2	5,443.0	-2,314.3	5,891.4	1.96	-0.27	-1.94	
12,456.0	90.61	338.10	6,412.9	5,526.5	-2,348.0	5,981.2	0.91	0.90	0.16	
12,545.0	91.51	339.94	6,411.2	5,609.6	-2,379.8	6,070.1	2.30	1.01	2.07	
12,634.0	91.31	341.84	6,409.0	5,693.6	-2,409.0	6,159.0	2.15	-0.22	2.13	
12,724.0	87.82	342.36	6,409.7	5,779.3	-2,436.6	6,249.0	3.92	-3.88	0.58	
12,813.0	87.75	342.40	6,413.2	5,864.0	-2,463.6	6,337.9	0.09	-0.08	0.04	
12,903.0	90.24	343.36	6,414.8	5,950.0	-2,490.0	6,427.9	2.97	2.77	1.07	
12,992.0	90.04	341.64	6,414.5	6,034.9	-2,516.8	6,516.9	1.95	-0.22	-1.93	
13,082.0	90.71	341.34	6,413.9	6,120.2	-2,545.4	6,606.9	0.82	0.74	-0.33	
13,172.0	90.57	340.47	6,412.9	6,205.3	-2,574.8	6,696.9	0.98	-0.16	-0.97	
13,261.0	90.64	343.36	6,412.0	6,289.9	-2,602.4	6,785.9	3.25	0.08	3.25	
13,351.0	90.51	343.10	6,411.1	6,376.0	-2,628.4	6,875.8	0.32	-0.14	-0.29	
13,440.0	91.04	343.65	6,409.9	6,461.3	-2,653.9	6,964.8	0.30	0.60	0.62	

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Company:	Antero Resources	Local Co-ordinate Reference:	Well Murphy Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Site:	Dotson Holland Pad: Alder/Amanda/Murphy/Zellerback	MD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Well:	Murphy Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,530.0	91.28	342.80	6,408.1	6,547.5	-2,679.8	7,054.8	0.98	0.27	-0.94	
13,620.0	91.48	344.34	6,405.9	6,633.8	-2,705.3	7,144.7	1.72	0.22	1.71	
13,709.0	89.40	343.54	6,405.2	6,719.3	-2,729.9	7,233.6	2.50	-2.34	-0.90	
13,799.0	89.67	343.87	6,405.9	6,805.7	-2,755.1	7,323.6	0.47	0.30	0.37	
13,888.0	89.33	343.51	6,406.7	6,891.1	-2,780.1	7,412.6	0.56	-0.38	-0.40	
13,978.0	89.57	341.36	6,407.6	6,976.9	-2,807.3	7,502.5	2.40	0.27	-2.39	
14,067.0	90.20	340.98	6,407.8	7,061.1	-2,836.0	7,591.5	0.83	0.71	-0.43	
14,157.0	90.94	342.12	6,406.9	7,146.5	-2,864.5	7,681.5	1.51	0.82	1.27	
14,246.0	89.67	340.70	6,406.4	7,230.8	-2,892.9	7,770.5	2.14	-1.43	-1.60	
14,336.0	90.44	341.98	6,406.3	7,316.1	-2,921.7	7,860.5	1.66	0.86	1.42	
14,426.0	90.81	341.87	6,405.3	7,401.6	-2,949.6	7,950.5	0.43	0.41	-0.12	
14,515.0	91.01	341.50	6,403.9	7,486.1	-2,977.6	8,039.5	0.47	0.22	-0.42	
14,604.0	89.63	339.65	6,403.4	7,570.1	-3,007.2	8,128.4	2.59	-1.55	-2.08	
14,694.0	90.10	340.91	6,403.6	7,654.8	-3,037.5	8,218.4	1.49	0.52	1.40	
14,783.0	90.44	342.14	6,403.2	7,739.2	-3,065.7	8,307.4	1.43	0.38	1.38	
14,873.0	90.64	342.10	6,402.4	7,824.8	-3,093.4	8,397.4	0.23	0.22	-0.04	
14,963.0	90.47	342.69	6,401.5	7,910.6	-3,120.6	8,487.4	0.68	-0.19	0.66	
15,052.0	90.30	341.49	6,400.9	7,995.3	-3,147.9	8,576.4	1.36	-0.19	-1.35	
15,144.0	90.17	340.42	6,400.5	8,082.3	-3,178.0	8,668.4	1.17	-0.14	-1.16	
Last SDI MWD @ 15144										
15,209.0	90.17	340.42	6,400.3	8,143.5	-3,199.7	8,733.3	0.00	0.00	0.00	
Projection To bit @ 15209 MD / 6400 TVD										

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
-As Drilled LP_Murphy - actual wellpath hits target center - Point	0.00	0.00	6,425.3	170.8	-590.3	14,261,612.50	1,675,779.90	39° 16' 25.295 N	80° 52' 30.154 W

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,319.0	6,236.3	Middlesex @ 6319		0.00	
6,494.0	6,345.4	Burket @ 6494		0.00	
6,565.0	6,376.9	Tully @ 6565		0.00	
6,655.0	6,405.5	Marcellus @ 6655		0.00	

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Company:	Antero Resources	Local Co-ordinate Reference:	Well Murphy Unit 1H
Project:	Doddridge County WV	TVD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Site:	Dotson Holland Pad: Alder/Amanda/Murphy/Zellerback	MD Reference:	Precision 523: 989' GL + 19' KB @ 1008.0usft
Well:	Murphy Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
100.0	100.0	0.0	0.0	First Gyro @ 100	
5,625.0	5,608.3	-115.8	-122.7	Last Gyro @ 5625	
5,650.0	5,632.0	-123.1	-125.8	Fist SDI MWD @ 5650	
6,815.0	6,425.3	170.8	-590.3	~As Drilled LP @ 6815 MD / 6425 TVD	
15,144.0	6,400.5	8,082.3	-3,178.0	Last SDI MWD @ 15144	
15,209.0	6,400.3	8,143.5	-3,199.7	Projection To bit @ 15209 MD / 6400 TVD	

Checked By: _____ Approved By: _____ Date: _____

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