



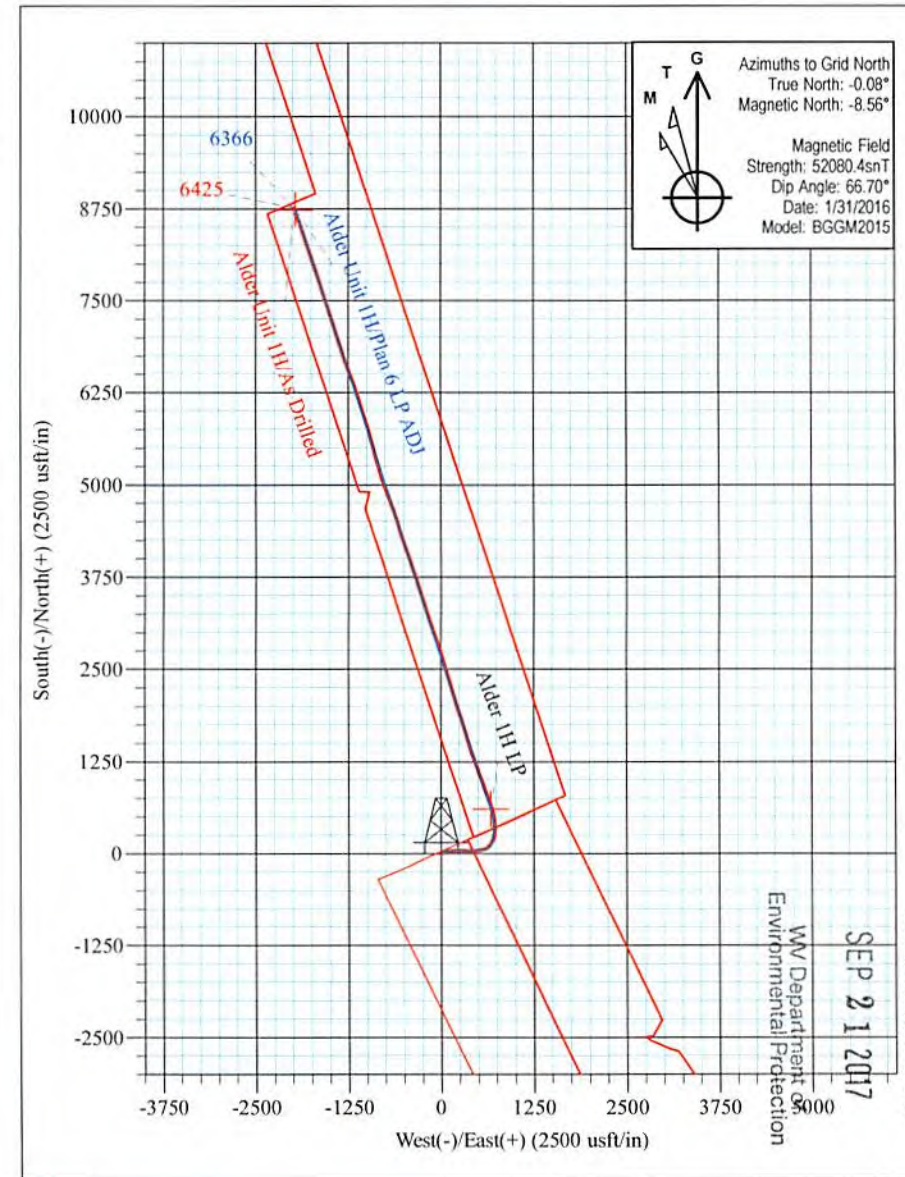
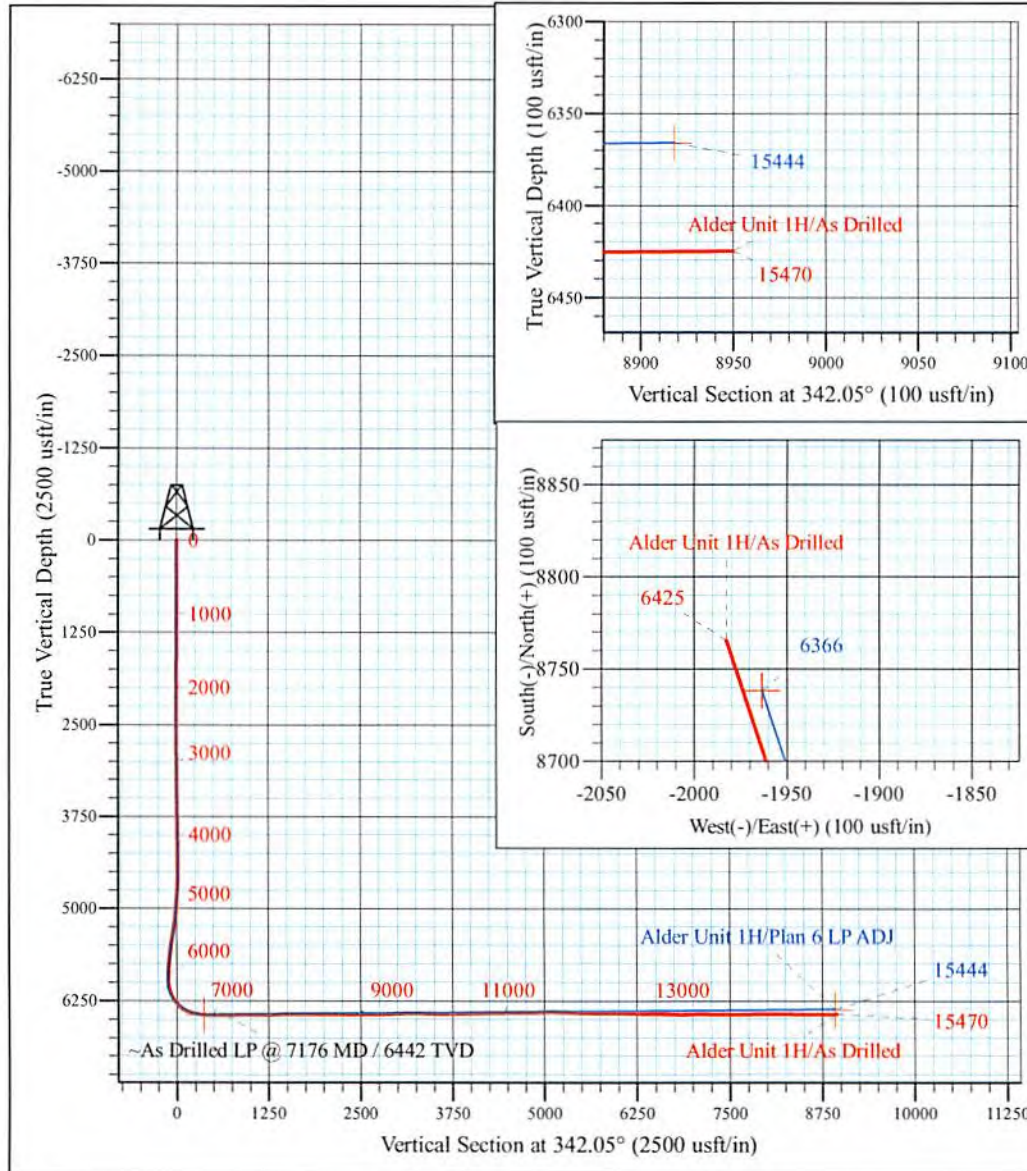
Dotson Holland Pad: Alder/Amanda/Murphy/Zellerback
 Alder Unit 1H
 Plan 6 LP ADJ
 Precision 523: 989' GL + 19' KB @ 1008.0usft
 Doddridge County WV

PROJECT DETAILS:
 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



WELL DETAILS: Alder Unit 1H SHL

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14261460.62	1676364.87	39° 16' 23.785 N	80° 52' 22.716 W



Alder Unit 1H
 Approx. BHL
 39° 17' 50.481 N 80° 52' 47.788 W

Shane Rhodes
 14:47, February 10 2016
 Scientific Drilling International
 124 Vista Drive
 Charleroi, PA 15022

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Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Alder 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:	Alder Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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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	Alder Unit 1H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,261,460.62 usft	Latitude:	39° 16' 23.785 N
	+E/-W	0.0 usft	Easting:	1,676,364.87 usft	Longitude:	80° 52' 22.716 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	1/1/2016	-8.47	66.71	52,090
	BGGM2015	1/31/2016	-8.48	66.70	52,080

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		342.05

Survey Program	Date	2/10/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
100.0	5,738.6	Survey #8 - Final Definitive Gyro (Original)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,775.0	15,470.0	Survey #9 - SDI MWD Surveys (Original W)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	

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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.23	253.32	100.0	-0.1	-0.2	0.0	0.23	0.23	0.00	
First Gyro @ 100										
125.0	0.18	238.87	125.0	-0.1	-0.3	0.0	0.29	-0.20	-57.80	
150.0	0.08	5.42	150.0	-0.1	-0.3	0.0	0.95	-0.40	506.20	
175.0	0.08	336.66	175.0	-0.1	-0.3	0.0	0.16	0.00	-115.04	
200.0	0.08	330.79	200.0	0.0	-0.3	0.1	0.03	0.00	-23.48	
225.0	0.09	347.31	225.0	0.0	-0.3	0.1	0.11	0.04	66.08	



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Alder 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:	Alder 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	0.18	348.98	250.0	0.1	-0.4	0.2	0.36	0.36	6.00
275.0	0.10	20.26	275.0	0.1	-0.4	0.2	0.43	-0.32	125.12
300.0	0.19	17.42	300.0	0.2	-0.3	0.3	0.36	0.36	-11.36
325.0	0.16	291.91	325.0	0.2	-0.4	0.3	0.95	-0.12	-342.04
350.0	0.19	322.40	350.0	0.3	-0.4	0.4	0.39	0.12	121.96
375.0	0.25	322.00	375.0	0.4	-0.5	0.5	0.24	0.24	-1.60
400.0	0.32	328.67	400.0	0.5	-0.5	0.6	0.31	0.28	26.68
425.0	0.41	342.81	425.0	0.6	-0.6	0.8	0.51	0.36	56.56
450.0	0.49	48.44	450.0	0.8	-0.5	0.9	1.97	0.32	262.52
475.0	0.44	77.86	475.0	0.8	-0.4	0.9	0.96	-0.20	117.68
500.0	1.33	67.29	500.0	1.0	0.0	0.9	3.60	3.56	-42.28
525.0	1.56	63.10	525.0	1.2	0.6	1.0	1.01	0.92	-16.76
550.0	1.89	59.37	550.0	1.6	1.2	1.2	1.39	1.32	-14.92
575.0	2.20	59.77	575.0	2.1	2.0	1.4	1.24	1.24	1.60
600.0	2.60	60.41	599.9	2.6	2.9	1.6	1.60	1.60	2.56
625.0	3.04	61.22	624.9	3.2	4.0	1.8	1.77	1.76	3.24
650.0	3.52	62.75	649.9	3.9	5.2	2.1	1.95	1.92	6.12
675.0	3.97	67.02	674.8	4.5	6.7	2.3	2.12	1.80	17.08
700.0	4.29	69.63	699.7	5.2	8.4	2.4	1.48	1.28	10.44
725.0	4.60	75.11	724.7	5.8	10.2	2.4	2.10	1.24	21.92
750.0	4.88	77.92	749.6	6.3	12.2	2.2	1.45	1.12	11.24
775.0	4.75	81.10	774.5	6.7	14.3	1.9	1.19	-0.52	12.72
800.0	4.85	81.47	799.4	7.0	16.4	1.6	0.42	0.40	1.48
825.0	4.90	81.99	824.3	7.3	18.5	1.2	0.27	0.20	2.08
850.0	4.85	81.41	849.2	7.6	20.6	0.9	0.28	-0.20	-2.32
875.0	4.90	81.47	874.1	7.9	22.7	0.5	0.20	0.20	0.24
900.0	4.46	80.77	899.1	8.2	24.7	0.2	1.77	-1.76	-2.80
925.0	4.36	82.21	924.0	8.5	26.6	-0.1	0.60	-0.40	5.76
950.0	3.86	83.25	948.9	8.7	28.4	-0.4	2.02	-2.00	4.16
975.0	3.85	81.69	973.9	8.9	30.0	-0.7	0.42	-0.04	-6.24
1,000.0	3.47	83.42	998.8	9.2	31.6	-1.0	1.58	-1.52	6.92
1,025.0	3.36	82.95	1,023.8	9.3	33.1	-1.3	0.45	-0.44	-1.88
1,050.0	3.17	82.78	1,048.7	9.5	34.5	-1.6	0.76	-0.76	-0.68
1,075.0	3.07	83.02	1,073.7	9.7	35.9	-1.8	0.40	-0.40	0.96
1,100.0	2.95	84.04	1,098.7	9.8	37.2	-2.1	0.53	-0.48	4.08
1,125.0	2.71	81.40	1,123.6	10.0	38.4	-2.3	1.09	-0.96	-10.56
1,150.0	2.56	80.94	1,148.6	10.2	39.5	-2.5	0.61	-0.60	-1.84
1,175.0	2.39	82.39	1,173.6	10.3	40.6	-2.7	0.72	-0.68	5.80
1,200.0	2.27	82.86	1,198.6	10.4	41.6	-2.9	0.49	-0.48	1.88
1,225.0	2.12	81.46	1,223.5	10.6	42.5	-3.1	0.64	-0.60	-5.60
1,250.0	2.09	83.59	1,248.5	10.7	43.5	-3.2	0.34	-0.12	8.52
1,275.0	1.84	82.81	1,273.5	10.8	44.3	-3.4	1.01	-1.00	-3.12
1,300.0	1.73	84.31	1,298.5	10.9	45.1	-3.5	0.48	-0.44	6.00

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Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Alder 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:	Alder 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)
1,325.0	1.70	85.57	1,323.5	10.9	45.8	-3.7	0.19	-0.12	5.04
1,350.0	1.58	83.48	1,348.5	11.0	46.5	-3.9	0.54	-0.48	-8.38
1,375.0	1.60	80.97	1,373.5	11.1	47.2	-4.0	0.29	0.08	-10.00
1,400.0	1.39	82.14	1,398.5	11.2	47.9	-4.1	0.85	-0.84	4.66
1,425.0	1.31	81.59	1,423.4	11.3	48.5	-4.2	0.32	-0.32	-2.20
1,450.0	1.18	82.15	1,448.4	11.4	49.0	-4.3	0.52	-0.52	2.24
1,475.0	1.14	83.70	1,473.4	11.4	49.5	-4.4	0.20	-0.16	6.20
1,500.0	1.16	80.00	1,498.4	11.5	50.0	-4.5	0.31	0.08	-14.80
1,525.0	1.11	82.59	1,523.4	11.6	50.5	-4.5	0.29	-0.20	10.36
1,550.0	1.00	84.21	1,548.4	11.6	50.9	-4.6	0.46	-0.44	6.48
1,575.0	1.01	74.74	1,573.4	11.7	51.4	-4.7	0.66	0.04	-37.88
1,600.0	0.84	79.46	1,598.4	11.8	51.8	-4.7	0.74	-0.68	18.88
1,625.0	0.91	84.12	1,623.4	11.9	52.1	-4.8	0.40	0.28	18.64
1,650.0	0.89	77.78	1,648.4	11.9	52.5	-4.9	0.41	-0.08	-25.36
1,675.0	0.86	81.49	1,673.4	12.0	52.9	-4.9	0.26	-0.12	14.84
1,700.0	0.73	78.24	1,698.4	12.0	53.2	-5.0	0.55	-0.52	-13.00
1,725.0	0.69	69.89	1,723.4	12.1	53.5	-5.0	0.44	-0.16	-33.40
1,750.0	0.61	58.74	1,748.4	12.2	53.8	-4.9	0.60	-0.32	-44.60
1,775.0	0.56	66.13	1,773.4	12.4	54.0	-4.9	0.36	-0.20	29.56
1,800.0	0.58	73.90	1,798.4	12.5	54.3	-4.9	0.32	0.08	31.08
1,825.0	0.65	69.18	1,823.4	12.5	54.5	-4.9	0.35	0.28	-18.88
1,850.0	0.56	69.01	1,848.4	12.6	54.8	-4.9	0.36	-0.36	-0.68
1,875.0	0.49	69.20	1,873.4	12.7	55.0	-4.8	0.28	-0.28	0.76
1,900.0	0.36	65.74	1,898.4	12.8	55.1	-4.8	0.53	-0.52	-13.84
1,925.0	0.36	67.65	1,923.4	12.8	55.3	-4.8	0.05	0.00	7.64
1,950.0	0.41	74.37	1,948.4	12.9	55.4	-4.8	0.27	0.20	26.88
1,975.0	0.28	68.82	1,973.4	12.9	55.6	-4.8	0.54	-0.52	-22.20
2,000.0	0.33	80.50	1,998.4	13.0	55.7	-4.8	0.32	0.20	46.72
2,025.0	0.21	73.51	2,023.4	13.0	55.8	-4.8	0.50	-0.48	-27.96
2,050.0	0.25	59.44	2,048.4	13.0	55.9	-4.8	0.28	0.16	-56.28
2,075.0	0.12	60.93	2,073.4	13.1	56.0	-4.8	0.52	-0.52	5.96
2,100.0	0.27	46.15	2,098.4	13.1	56.1	-4.8	0.63	0.60	-59.12
2,125.0	0.21	40.59	2,123.4	13.2	56.1	-4.7	0.26	-0.24	-22.24
2,150.0	0.20	26.47	2,148.4	13.3	56.2	-4.7	0.21	-0.04	-56.48
2,175.0	0.19	25.19	2,173.4	13.4	56.2	-4.6	0.04	-0.04	-5.12
2,200.0	0.24	48.23	2,198.4	13.4	56.3	-4.6	0.40	0.20	92.16
2,225.0	0.17	2.95	2,223.4	13.5	56.3	-4.5	0.68	-0.28	-181.12
2,250.0	0.14	359.61	2,248.4	13.6	56.3	-4.4	0.13	-0.12	-13.36
2,275.0	0.28	20.52	2,273.4	13.7	56.3	-4.4	0.63	0.56	83.64
2,300.0	0.15	15.53	2,298.4	13.8	56.4	-4.3	0.52	-0.52	-19.96
2,325.0	0.16	335.38	2,323.4	13.8	56.4	-4.2	0.43	0.04	-160.60
2,350.0	0.37	329.90	2,348.4	13.9	56.3	-4.1	0.85	0.84	-21.92

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Survey Report



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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:	Alder 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)
2,375.0	0.26	314.63	2,373.4	14.0	56.2	-4.0	0.55	-0.44	-61.08
2,400.0	0.16	36.15	2,398.4	14.1	56.2	-3.9	1.14	-0.40	326.08
2,425.0	0.38	338.21	2,423.4	14.2	56.2	-3.8	1.30	0.88	-231.76
2,450.0	0.32	285.86	2,448.4	14.3	56.1	-3.7	1.25	-0.24	-209.40
2,475.0	0.38	316.09	2,473.4	14.4	56.0	-3.6	0.77	0.24	120.92
2,500.0	0.15	298.60	2,498.4	14.5	55.9	-3.5	0.96	-0.92	-69.96
2,525.0	0.19	303.09	2,523.4	14.5	55.8	-3.4	0.17	0.16	17.96
2,550.0	0.21	327.73	2,548.4	14.6	55.8	-3.3	0.35	0.08	98.56
2,575.0	0.19	337.44	2,573.4	14.6	55.7	-3.3	0.16	-0.08	38.84
2,600.0	0.21	335.94	2,598.4	14.7	55.7	-3.2	0.08	0.08	-6.00
2,625.0	0.25	326.48	2,623.4	14.8	55.6	-3.1	0.22	0.16	-37.84
2,650.0	0.25	329.37	2,648.4	14.9	55.6	-3.0	0.05	0.00	11.56
2,675.0	0.35	321.21	2,673.4	15.0	55.5	-2.8	0.43	0.40	-32.64
2,700.0	0.41	329.21	2,698.4	15.1	55.4	-2.7	0.32	0.24	32.00
2,725.0	0.34	323.82	2,723.4	15.3	55.3	-2.5	0.31	-0.28	-21.56
2,750.0	0.35	311.14	2,748.4	15.4	55.2	-2.4	0.31	0.04	-50.72
2,775.0	0.41	303.71	2,773.4	15.5	55.1	-2.3	0.31	0.24	-29.72
2,800.0	0.47	299.22	2,798.4	15.6	54.9	-2.1	0.28	0.24	-17.96
2,825.0	0.43	307.49	2,823.4	15.7	54.8	-2.0	0.30	-0.16	33.08
2,850.0	0.46	307.77	2,848.4	15.8	54.6	-1.8	0.12	0.12	1.12
2,875.0	0.46	306.46	2,873.4	15.9	54.4	-1.6	0.04	0.00	-5.24
2,900.0	0.43	311.12	2,898.4	16.0	54.3	-1.5	0.19	-0.12	18.64
2,925.0	0.44	309.69	2,923.4	16.2	54.1	-1.3	0.06	0.04	-5.72
2,950.0	0.43	306.63	2,948.4	16.3	54.0	-1.1	0.10	-0.04	-12.24
2,975.0	0.40	310.54	2,973.4	16.4	53.9	-1.0	0.16	-0.12	15.64
3,000.0	0.40	308.34	2,998.4	16.5	53.7	-0.9	0.06	0.00	-8.80
3,025.0	0.44	310.09	3,023.4	16.6	53.6	-0.7	0.17	0.16	7.00
3,050.0	0.47	311.55	3,048.4	16.8	53.4	-0.5	0.13	0.12	5.84
3,075.0	0.42	310.83	3,073.4	16.9	53.3	-0.4	0.20	-0.20	-2.88
3,100.0	0.43	308.77	3,098.4	17.0	53.1	-0.2	0.07	0.04	-8.24
3,125.0	0.48	308.25	3,123.4	17.1	53.0	0.0	0.20	0.20	-2.08
3,150.0	0.45	310.04	3,148.4	17.3	52.8	0.1	0.13	-0.12	7.16
3,175.0	0.45	306.89	3,173.4	17.4	52.7	0.3	0.10	0.00	-12.60
3,200.0	0.45	306.56	3,198.4	17.5	52.5	0.5	0.01	0.00	-1.32
3,225.0	0.47	309.18	3,223.4	17.6	52.4	0.6	0.12	0.08	10.48
3,250.0	0.46	309.26	3,248.4	17.7	52.2	0.8	0.04	-0.04	0.32
3,275.0	0.49	310.69	3,273.4	17.9	52.0	1.0	0.13	0.12	5.72
3,300.0	0.58	309.28	3,298.4	18.0	51.9	1.2	0.36	0.36	-5.64
3,325.0	0.52	309.21	3,323.4	18.2	51.7	1.4	0.24	-0.24	-0.28
3,350.0	0.48	301.40	3,348.4	18.3	51.5	1.5	0.32	-0.16	-31.24
3,375.0	0.50	307.06	3,373.4	18.4	51.3	1.7	0.21	0.08	22.64
3,400.0	0.52	305.47	3,398.4	18.6	51.1	1.9	0.10	0.08	-6.36
3,425.0	0.55	306.10	3,423.4	18.7	51.0	2.1	0.12	0.12	2.52

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Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Alder 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:	Alder 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	0.57	307.84	3,448.4	18.8	50.8	2.3	0.11	0.08	6.96
3,475.0	0.57	310.56	3,473.4	19.0	50.6	2.5	0.11	0.00	10.88
3,500.0	0.54	308.97	3,498.4	19.2	50.4	2.7	0.13	-0.12	-6.36
3,525.0	0.47	304.64	3,523.4	19.3	50.2	2.9	0.32	-0.28	-17.32
3,550.0	0.64	301.41	3,548.4	19.4	50.0	3.1	0.69	0.68	-12.92
3,575.0	0.66	302.10	3,573.4	19.6	49.8	3.3	0.09	0.08	2.76
3,600.0	0.60	302.47	3,598.3	19.7	49.5	3.5	0.24	-0.24	1.48
3,625.0	0.63	300.24	3,623.3	19.9	49.3	3.7	0.15	0.12	-8.92
3,650.0	0.60	300.08	3,648.3	20.0	49.1	3.9	0.12	-0.12	-0.64
3,675.0	0.63	302.11	3,673.3	20.1	48.8	4.1	0.15	0.12	8.12
3,700.0	0.62	300.82	3,698.3	20.3	48.6	4.3	0.07	-0.04	-5.16
3,725.0	0.61	303.90	3,723.3	20.4	48.4	4.5	0.14	-0.04	12.32
3,750.0	0.51	303.46	3,748.3	20.5	48.2	4.7	0.40	-0.40	-1.76
3,775.0	0.46	304.85	3,773.3	20.7	48.0	4.9	0.21	-0.20	5.56
3,800.0	0.56	304.74	3,798.3	20.8	47.8	5.0	0.40	0.40	-0.44
3,825.0	0.56	303.72	3,823.3	20.9	47.6	5.2	0.04	0.00	-4.08
3,850.0	0.53	309.19	3,848.3	21.1	47.4	5.4	0.24	-0.12	21.88
3,875.0	0.56	310.36	3,873.3	21.2	47.2	5.6	0.13	0.12	4.68
3,900.0	0.70	308.84	3,898.3	21.4	47.0	5.9	0.56	0.56	-6.08
3,925.0	0.86	309.52	3,923.3	21.6	46.8	6.1	0.64	0.64	2.72
3,950.0	1.02	313.63	3,948.3	21.9	46.5	6.5	0.69	0.64	16.44
3,975.0	1.12	315.20	3,973.3	22.2	46.1	6.9	0.42	0.40	6.28
4,000.0	1.13	313.44	3,998.3	22.6	45.8	7.3	0.14	0.04	-7.04
4,025.0	1.15	313.42	4,023.3	22.9	45.4	7.8	0.08	0.08	-0.08
4,050.0	1.18	317.09	4,048.3	23.3	45.1	8.2	0.32	0.12	14.68
4,075.0	1.17	320.32	4,073.3	23.6	44.7	8.7	0.27	-0.04	12.92
4,100.0	1.11	321.07	4,098.3	24.0	44.4	9.2	0.25	-0.24	3.00
4,125.0	1.12	323.44	4,123.3	24.4	44.1	9.6	0.19	0.04	9.48
4,150.0	1.03	315.64	4,148.3	24.8	43.8	10.1	0.69	-0.36	-31.20
4,175.0	0.96	310.31	4,173.3	25.1	43.5	10.4	0.46	-0.28	-21.32
4,200.0	0.91	320.45	4,198.3	25.4	43.2	10.8	0.69	-0.20	40.56
4,225.0	0.89	316.21	4,223.3	25.6	42.9	11.2	0.28	-0.08	-16.96
4,250.0	0.93	314.17	4,248.3	25.9	42.7	11.5	0.21	0.16	-8.16
4,275.0	0.98	321.63	4,273.3	26.2	42.4	11.9	0.54	0.20	29.84
4,300.0	0.93	328.07	4,298.3	26.6	42.1	12.3	0.47	-0.20	25.76
4,325.0	0.78	13.68	4,323.3	26.9	42.1	12.6	2.71	-0.60	182.44
4,350.0	1.52	59.31	4,348.3	27.2	42.4	12.9	4.49	2.96	182.52
4,375.0	2.41	69.78	4,373.2	27.6	43.2	12.9	3.82	3.56	41.88
4,400.0	3.73	76.31	4,398.2	28.0	44.5	12.9	5.45	5.28	26.12
4,425.0	4.76	77.84	4,423.1	28.4	46.3	12.7	4.14	4.12	6.12
4,450.0	5.76	78.49	4,448.0	28.9	48.5	12.5	4.01	4.00	2.60
4,475.0	6.97	79.04	4,472.9	29.4	51.2	12.2	4.85	4.84	2.20

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Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Alder 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:	Alder 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	7.26	79.60	4,497.7	30.0	54.3	11.8	1.19	1.16	2.22
4,525.0	7.36	79.43	4,522.5	30.5	57.4	11.4	0.41	0.40	-0.66
4,550.0	7.44	76.97	4,547.3	31.2	60.6	11.0	1.31	0.32	-9.66
4,575.0	7.57	77.23	4,572.1	31.9	63.7	10.7	0.54	0.52	1.04
4,600.0	7.76	79.40	4,596.8	32.6	67.0	10.4	1.38	0.76	8.68
4,625.0	8.01	81.56	4,621.6	33.2	70.4	9.9	1.55	1.00	8.64
4,650.0	8.10	81.68	4,646.4	33.7	73.8	9.3	0.37	0.36	0.48
4,675.0	8.34	82.40	4,671.1	34.2	77.4	8.7	1.04	0.96	2.88
4,700.0	8.93	87.59	4,695.8	34.5	81.1	7.8	3.91	2.36	20.76
4,725.0	9.52	89.64	4,720.5	34.6	85.1	6.7	2.70	2.36	8.20
4,750.0	10.61	88.21	4,745.1	34.7	89.5	5.4	4.47	4.36	-5.72
4,775.0	11.61	87.47	4,769.6	34.9	94.3	4.1	4.04	4.00	-2.96
4,800.0	12.27	86.94	4,794.1	35.1	99.5	2.7	2.68	2.64	-2.12
4,825.0	12.70	86.85	4,818.5	35.4	104.9	1.4	1.72	1.72	-0.36
4,850.0	13.04	86.72	4,842.9	35.7	110.4	-0.1	1.36	1.36	-0.52
4,875.0	13.87	88.86	4,867.2	35.9	116.2	-1.6	3.87	3.32	8.56
4,900.0	14.45	89.55	4,891.4	36.0	122.4	-3.4	2.42	2.32	2.76
4,925.0	15.54	88.36	4,915.6	36.1	128.8	-5.3	4.53	4.36	-4.76
4,950.0	16.13	87.23	4,939.6	36.4	135.6	-7.2	2.66	2.36	-4.52
4,975.0	17.25	85.32	4,963.6	36.9	142.8	-8.9	4.99	4.48	-7.64
5,000.0	17.87	83.06	4,987.4	37.6	150.3	-10.5	3.69	2.48	-9.04
5,025.0	18.79	81.46	5,011.1	38.7	158.1	-11.9	4.19	3.68	-6.40
5,050.0	19.09	81.39	5,034.8	39.9	166.1	-13.2	1.20	1.20	-0.28
5,075.0	19.86	82.48	5,058.4	41.1	174.4	-14.7	3.41	3.08	4.36
5,100.0	20.82	84.17	5,081.8	42.1	183.0	-16.4	4.50	3.84	6.76
5,125.0	21.61	86.13	5,105.1	42.9	192.0	-18.4	4.25	3.16	7.84
5,150.0	22.37	88.09	5,128.3	43.3	201.4	-20.8	4.23	3.04	7.84
5,175.0	23.32	89.61	5,151.3	43.5	211.1	-23.7	4.47	3.80	6.08
5,200.0	23.62	91.14	5,174.3	43.5	221.0	-26.8	2.72	1.20	6.12
5,225.0	24.08	91.75	5,197.1	43.2	231.1	-30.1	2.09	1.84	2.44
5,250.0	24.08	92.09	5,220.0	42.9	241.3	-33.6	0.55	0.00	1.36
5,275.0	24.69	92.21	5,242.7	42.5	251.6	-37.2	2.45	2.44	0.48
5,300.0	25.23	92.16	5,265.4	42.1	262.2	-40.8	2.16	2.16	-0.20
5,325.0	25.60	92.74	5,288.0	41.6	272.9	-44.5	1.78	1.48	2.32
5,350.0	25.69	93.11	5,310.5	41.1	283.7	-48.4	0.73	0.36	1.48
5,375.0	25.05	93.01	5,333.1	40.5	294.4	-52.2	2.57	-2.56	-0.40
5,400.0	25.24	92.55	5,355.7	40.0	305.0	-56.0	1.09	0.76	-1.84
5,425.0	25.63	92.54	5,378.3	39.5	315.7	-59.7	1.56	1.56	-0.04
5,450.0	25.59	91.88	5,400.8	39.1	326.5	-63.5	1.15	-0.16	-2.64
5,475.0	25.00	91.03	5,423.4	38.8	337.2	-67.0	2.77	-2.36	-3.40
5,500.0	25.56	90.71	5,446.1	38.6	347.9	-70.5	2.31	2.24	-1.28
5,525.0	25.96	90.58	5,468.6	38.5	358.8	-73.9	1.62	1.60	-0.52
5,550.0	25.44	90.02	5,491.1	38.5	369.6	-77.3	2.30	-2.08	-2.24

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Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Alder 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:	Alder 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	24.67	89.00	5,513.7	38.5	380.2	-80.5	3.53	-3.08	-4.08	
5,600.0	25.29	88.73	5,536.4	38.8	390.7	-83.5	2.52	2.48	-1.06	
5,625.0	25.66	88.57	5,559.0	39.0	401.5	-86.6	1.51	1.48	-0.64	
5,650.0	25.11	87.61	5,581.6	39.4	412.2	-89.6	2.75	-2.20	-3.84	
5,675.0	25.04	86.86	5,604.2	39.9	422.8	-92.4	1.30	-0.28	-3.00	
5,700.0	25.56	86.55	5,626.8	40.5	433.4	-95.1	2.15	2.08	-1.24	
5,725.0	25.26	86.27	5,649.4	41.2	444.2	-97.7	1.29	-1.20	-1.12	
5,738.0	25.48	85.53	5,661.1	41.6	449.7	-99.1	2.96	1.69	-5.67	
Last Gyro @ 5738										
5,738.6	25.49	85.50	5,661.7	41.6	450.0	-99.1	2.96	1.71	-5.62	
5,775.0	25.92	83.06	5,694.5	43.2	465.7	-102.5	3.14	1.18	-6.70	
First SDI MWD @ 5775										
5,805.0	26.02	82.50	5,721.4	44.8	478.7	-104.9	0.88	0.33	-1.87	
5,834.0	25.84	82.22	5,747.5	46.5	491.3	-107.2	0.75	-0.62	-0.97	
5,864.0	26.12	82.17	5,774.5	48.3	504.3	-109.5	0.94	0.93	-0.17	
5,894.0	25.73	81.48	5,801.5	50.1	517.3	-111.7	1.64	-1.30	-2.30	
5,924.0	24.99	80.28	5,828.6	52.2	530.0	-113.7	3.00	-2.47	-4.00	
5,954.0	25.14	79.72	5,855.8	54.4	542.5	-115.4	0.94	0.50	-1.87	
5,984.0	24.96	78.58	5,882.9	56.8	555.0	-117.0	1.72	-0.60	-3.80	
6,013.0	24.87	77.99	5,909.2	59.3	566.9	-118.3	0.91	-0.31	-2.03	
6,043.0	24.61	76.74	5,936.5	62.0	579.2	-119.5	1.95	-0.87	-4.17	
6,073.0	24.31	75.44	5,963.8	65.0	591.2	-120.4	2.05	-1.00	-4.33	
6,103.0	24.51	68.53	5,991.1	68.8	603.0	-120.4	9.54	0.67	-23.03	
6,133.0	25.86	59.38	6,018.3	74.4	614.4	-118.5	13.72	4.50	-30.50	
6,163.0	27.91	53.31	6,045.0	82.0	625.7	-114.9	11.41	6.83	-20.23	
6,192.0	29.27	48.34	6,070.5	90.7	636.4	-109.8	9.44	4.69	-17.14	
6,221.0	30.79	43.65	6,095.6	100.8	646.8	-103.4	9.64	5.24	-16.17	
6,251.0	32.21	38.97	6,121.2	112.6	657.2	-95.4	9.42	4.73	-15.60	
6,282.0	33.79	34.88	6,147.2	126.1	667.3	-85.7	8.81	5.10	-13.19	
6,312.0	35.46	31.87	6,171.9	140.3	676.7	-75.0	7.97	5.57	-10.03	
6,342.0	37.14	29.33	6,196.1	155.6	685.7	-63.3	7.51	5.60	-8.47	
6,372.0	38.89	26.16	6,219.7	172.0	694.3	-50.4	8.74	5.83	-10.57	
6,402.0	41.49	21.54	6,242.6	189.7	702.1	-35.9	13.18	8.67	-15.40	
6,413.0	42.23	19.71	6,250.8	196.5	704.7	-30.2	12.96	6.72	-16.61	
Middlesex @ 6413										
6,432.0	43.57	16.68	6,264.7	208.8	708.7	-19.8	12.96	7.06	-15.96	
6,461.0	45.03	11.18	6,285.5	228.5	713.6	-2.6	14.17	5.03	-18.97	
6,491.0	47.48	8.79	6,306.2	249.8	717.3	16.6	9.99	8.17	-7.97	
6,521.0	51.26	5.74	6,325.8	272.4	720.2	37.2	14.77	12.60	-10.17	
6,550.0	54.81	3.33	6,343.2	295.5	722.0	58.6	13.92	12.24	-8.31	
6,580.0	58.40	1.11	6,359.7	320.5	723.0	82.1	13.47	11.97	-7.40	
6,585.0	59.08	0.76	6,362.3	324.8	723.0	86.1	14.83	13.59	-6.93	
Burket @ 6585										

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Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Alder 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:	Alder 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)
6,610.0	62.49	359.10	6,374.5	346.6	723.0	106.9	14.83	13.64	-6.65
6,640.0	66.43	358.06	6,387.4	373.6	722.3	132.8	13.50	13.13	-3.47
6,652.0	68.16	357.86	6,392.1	384.7	721.9	143.5	14.51	14.43	-1.63
Tully @ 6652									
6,670.0	70.76	357.58	6,398.4	401.5	721.3	159.7	14.51	14.43	-1.58
6,700.0	73.34	356.24	6,407.6	430.0	719.7	187.3	9.59	8.60	-4.47
6,729.0	75.77	353.20	6,415.4	457.9	717.1	214.6	13.13	8.38	-10.48
6,748.0	77.37	351.89	6,419.8	476.2	714.7	232.7	10.77	8.42	-6.89
Marcellus @ 6748									
6,759.0	78.30	351.14	6,422.1	486.8	713.2	243.3	10.77	8.45	-6.82
6,789.0	80.72	348.51	6,427.6	515.9	707.9	272.6	11.81	8.07	-8.77
6,819.0	82.14	345.31	6,432.0	544.7	701.2	302.1	11.56	4.73	-10.67
6,849.0	84.01	343.84	6,435.6	573.5	693.3	331.9	7.91	6.23	-4.90
6,879.0	85.76	342.16	6,438.3	602.0	684.6	361.7	8.07	5.83	-5.60
6,908.0	86.81	341.71	6,440.2	629.5	675.6	390.7	3.94	3.62	-1.55
6,950.0	88.79	339.82	6,441.8	669.2	661.8	432.6	6.51	4.71	-4.50
6,997.0	89.30	339.51	6,442.6	713.2	645.4	479.6	1.27	1.09	-0.66
7,087.0	89.90	339.97	6,443.2	797.7	614.3	569.5	0.84	0.67	0.51
7,176.0	90.79	340.90	6,442.7	881.5	584.5	658.5	1.45	1.00	1.04
~As Drilled LP @ 7176 MD / 6442 TVD									
7,266.0	91.02	341.22	6,441.3	966.6	555.3	748.5	0.44	0.26	0.36
7,355.0	91.29	340.93	6,439.5	1,050.8	526.4	837.4	0.45	0.30	-0.33
7,445.0	90.52	340.92	6,438.1	1,135.8	497.0	927.4	0.86	-0.86	-0.01
7,534.0	89.98	340.66	6,437.7	1,219.9	467.7	1,016.4	0.67	-0.61	-0.29
7,624.0	89.98	340.01	6,437.7	1,304.6	437.4	1,106.3	0.72	0.00	-0.72
7,713.0	90.85	341.59	6,437.0	1,388.7	408.2	1,195.3	2.03	0.98	1.78
7,802.0	91.28	343.04	6,435.4	1,473.5	381.1	1,284.3	1.70	0.48	1.63
7,892.0	91.41	342.99	6,433.3	1,559.5	354.8	1,374.2	0.15	0.14	-0.06
7,982.0	90.67	343.70	6,431.6	1,645.7	329.1	1,464.2	1.14	-0.82	0.79
8,071.0	89.90	342.67	6,431.2	1,730.9	303.3	1,553.2	1.44	-0.87	-1.16
8,161.0	89.26	341.70	6,431.9	1,816.6	275.8	1,643.2	1.29	-0.71	-1.08
8,250.0	90.97	342.51	6,431.7	1,901.3	248.4	1,732.2	2.13	1.92	0.91
8,340.0	90.84	342.28	6,430.3	1,987.1	221.2	1,822.2	0.29	-0.14	-0.26
8,429.0	90.94	342.25	6,428.9	2,071.8	194.1	1,911.2	0.12	0.11	-0.03
8,519.0	91.10	342.21	6,427.3	2,157.5	166.6	2,001.1	0.18	0.18	-0.04
8,609.0	89.02	341.12	6,427.2	2,242.9	138.3	2,091.1	2.61	-2.31	-1.21
8,698.0	89.90	343.31	6,428.0	2,327.7	111.2	2,180.1	2.65	0.99	2.46
8,788.0	90.53	344.71	6,427.7	2,414.2	86.4	2,270.1	1.71	0.70	1.56
8,877.0	90.63	344.23	6,426.8	2,499.9	62.5	2,359.0	0.55	0.11	-0.54
8,967.0	90.06	343.50	6,426.2	2,586.4	37.5	2,448.9	1.03	-0.63	-0.81
9,056.0	89.83	343.58	6,426.3	2,671.7	12.3	2,537.9	0.27	-0.26	0.09
9,146.0	89.86	341.59	6,426.6	2,757.6	-14.6	2,627.9	2.21	0.03	-2.21
9,236.0	90.37	341.99	6,426.4	2,843.1	-42.8	2,717.9	0.72	0.57	0.44

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Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Alder 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:	Alder 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)
9,325.0	90.63	340.79	6,425.6	2,927.4	-71.2	2,806.9	1.38	0.29	-1.35
9,415.0	90.80	340.69	6,424.5	3,012.4	-100.8	2,896.8	0.22	0.19	-0.11
9,504.0	90.83	340.51	6,423.2	3,096.3	-130.4	2,985.8	0.21	0.03	-0.20
9,594.0	91.34	340.01	6,421.5	3,181.0	-160.8	3,075.7	0.79	0.57	-0.55
9,683.0	90.64	342.16	6,420.0	3,265.2	-189.6	3,164.7	2.54	-0.79	2.40
9,773.0	90.74	342.35	6,418.9	3,350.9	-217.1	3,254.7	0.24	0.11	0.20
9,862.0	89.09	342.15	6,419.0	3,435.7	-244.2	3,343.7	1.87	-1.85	-0.22
9,952.0	89.16	341.81	6,420.4	3,521.3	-272.0	3,433.7	0.39	0.08	-0.38
10,041.0	88.42	341.81	6,422.3	3,605.8	-299.8	3,522.7	0.83	-0.83	0.00
10,131.0	89.73	341.95	6,423.7	3,691.3	-327.8	3,612.7	1.46	1.46	0.16
10,221.0	91.77	343.17	6,422.6	3,777.2	-354.8	3,702.6	2.64	2.27	1.36
10,310.0	90.57	342.58	6,420.7	3,862.2	-381.0	3,791.6	1.50	-1.35	-0.66
10,400.0	91.03	341.88	6,419.5	3,947.9	-408.4	3,881.6	0.93	0.51	-0.78
10,489.0	91.07	341.79	6,417.9	4,032.4	-436.2	3,970.6	0.11	0.04	-0.10
10,579.0	91.07	341.52	6,416.2	4,117.9	-464.5	4,060.6	0.30	0.00	-0.30
10,668.0	91.27	341.10	6,414.4	4,202.1	-493.0	4,149.5	0.52	0.22	-0.47
10,758.0	90.40	339.92	6,413.0	4,287.0	-523.0	4,239.5	1.63	-0.97	-1.31
10,848.0	91.51	342.39	6,411.5	4,372.1	-552.1	4,329.5	3.01	1.23	2.74
10,937.0	91.30	344.06	6,409.4	4,457.3	-577.8	4,418.4	1.89	-0.24	1.88
11,027.0	90.40	342.76	6,408.0	4,543.6	-603.5	4,508.4	1.76	-1.00	-1.44
11,116.0	90.33	341.09	6,407.5	4,628.2	-631.1	4,597.4	1.88	-0.08	-1.88
11,206.0	90.30	339.45	6,407.0	4,712.9	-661.5	4,687.3	1.82	-0.03	-1.82
11,295.0	90.50	338.19	6,406.3	4,795.9	-693.6	4,776.2	1.43	0.22	-1.42
11,385.0	90.90	340.09	6,405.2	4,879.9	-725.7	4,866.1	2.16	0.44	2.11
11,474.0	91.61	340.02	6,403.3	4,963.6	-756.0	4,955.0	0.80	0.80	-0.08
11,564.0	90.10	342.95	6,402.0	5,048.9	-784.6	5,045.0	3.66	-1.68	3.26
11,653.0	89.59	343.40	6,402.2	5,134.1	-810.3	5,133.9	0.76	-0.57	0.51
11,743.0	89.53	343.79	6,402.9	5,220.4	-835.8	5,223.9	0.44	-0.07	0.43
11,832.0	89.12	343.67	6,403.9	5,305.9	-860.7	5,312.9	0.48	-0.46	-0.13
11,922.0	88.01	344.31	6,406.2	5,392.3	-885.5	5,402.8	1.42	-1.23	0.71
12,011.0	88.35	344.41	6,409.0	5,478.0	-909.5	5,491.7	0.40	0.38	0.11
12,101.0	88.75	344.13	6,411.3	5,564.6	-933.9	5,581.6	0.54	0.44	-0.31
12,190.0	88.58	343.27	6,413.4	5,650.0	-958.9	5,670.5	0.98	-0.19	-0.97
12,280.0	89.96	343.12	6,414.5	5,736.1	-984.9	5,760.5	1.54	1.53	-0.17
12,369.0	88.95	343.85	6,415.4	5,821.5	-1,010.2	5,849.4	1.40	-1.13	0.82
12,459.0	89.12	343.55	6,416.9	5,907.8	-1,035.4	5,939.4	0.38	0.19	-0.33
12,549.0	88.81	342.33	6,418.5	5,993.9	-1,061.8	6,029.4	1.40	-0.34	-1.36
12,638.0	88.68	342.35	6,420.5	6,078.6	-1,088.8	6,118.3	0.15	-0.15	0.02
12,727.0	89.59	342.73	6,421.8	6,163.5	-1,115.5	6,207.3	1.11	1.02	0.43
12,817.0	89.49	341.60	6,422.5	6,249.2	-1,143.1	6,297.3	1.26	-0.11	-1.26
12,906.0	90.06	341.02	6,422.9	6,333.5	-1,171.6	6,386.3	0.91	0.64	-0.65
12,996.0	89.19	340.42	6,423.5	6,418.5	-1,201.3	6,476.3	1.17	-0.97	-0.67

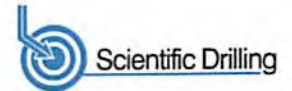
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Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Alder 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:	Alder 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)
13,086.0	89.39	340.54	6,424.6	6,503.3	-1,231.4	6,566.2	0.26	0.22	0.13
13,175.0	88.41	340.25	6,426.3	6,587.1	-1,261.2	6,655.2	1.15	-1.10	-0.33
13,265.0	88.18	340.20	6,429.0	6,671.8	-1,291.7	6,745.1	0.26	-0.26	-0.09
13,354.0	89.69	342.01	6,430.6	6,755.9	-1,320.5	6,834.1	2.65	1.70	2.05
13,444.0	90.63	341.43	6,430.4	6,841.4	-1,348.7	6,924.1	1.23	1.04	-0.66
13,533.0	91.13	341.42	6,429.0	6,925.8	-1,377.1	7,013.0	0.56	0.56	-0.04
13,623.0	91.03	342.11	6,427.3	7,011.2	-1,405.2	7,103.0	0.77	-0.11	0.77
13,713.0	90.12	342.98	6,426.4	7,097.1	-1,432.2	7,193.0	1.40	-1.01	0.97
13,802.0	90.53	342.75	6,425.9	7,182.1	-1,458.4	7,282.0	0.53	0.46	-0.26
13,892.0	90.09	342.69	6,425.4	7,268.1	-1,485.2	7,372.0	0.49	-0.49	-0.07
13,981.0	88.78	341.29	6,426.3	7,352.7	-1,512.7	7,461.0	2.15	-1.47	-1.57
14,071.0	89.79	341.47	6,427.4	7,438.0	-1,541.4	7,551.0	1.14	1.12	0.20
14,160.0	91.30	341.96	6,426.6	7,522.5	-1,569.3	7,640.0	1.78	1.70	0.55
14,250.0	89.32	341.94	6,426.1	7,608.0	-1,597.2	7,730.0	2.20	-2.20	-0.02
14,339.0	89.82	341.61	6,426.7	7,692.6	-1,625.1	7,819.0	0.67	0.56	-0.37
14,430.0	90.43	341.06	6,426.5	7,778.8	-1,654.2	7,910.0	0.90	0.67	-0.60
14,519.0	90.02	341.16	6,426.2	7,863.0	-1,683.0	7,998.9	0.47	-0.46	0.11
14,608.0	90.39	341.49	6,425.9	7,947.3	-1,711.5	8,087.9	0.56	0.42	0.37
14,698.0	89.39	342.94	6,426.0	8,033.0	-1,739.0	8,177.9	1.96	-1.11	1.61
14,787.0	89.22	342.10	6,427.1	8,117.9	-1,765.7	8,266.9	0.96	-0.19	-0.94
14,877.0	89.55	341.92	6,428.1	8,203.5	-1,793.5	8,356.9	0.42	0.37	-0.20
14,966.0	89.69	341.67	6,428.7	8,288.0	-1,821.3	8,445.9	0.32	0.16	-0.28
15,056.0	90.46	340.83	6,428.6	8,373.2	-1,850.2	8,535.9	1.27	0.86	-0.93
15,145.0	90.90	339.83	6,427.5	8,457.0	-1,880.2	8,624.8	1.23	0.49	-1.12
15,235.0	90.16	340.81	6,426.7	8,541.7	-1,910.5	8,714.8	1.36	-0.82	1.09
15,325.0	90.56	343.07	6,426.1	8,627.3	-1,938.4	8,804.8	2.55	0.44	2.51
15,405.0	90.53	341.92	6,425.3	8,703.6	-1,962.5	8,884.8	1.44	-0.04	-1.44
Last SDI MWD @ 15405									
15,470.0	90.53	341.92	6,424.7	8,765.4	-1,982.6	8,949.8	0.00	0.00	0.00
Projection To Bit @ 15470 MD / 6424 TVD									

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Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
-LP As Drilled	0.00	0.00	6,442.7	881.5	584.5	14,262,342.13	1,676,949.34	39° 16' 32.493 N	80° 52' 15.265 W
- actual wellpath hits target center									
- Point									



Scientific Drilling International
Survey Report



Company:	Antero Resources	Local Co-ordinate Reference:	Well Alder 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:	Alder Unit 1H	North Reference:	Grid
Wellbore:	Original Wellpath	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,413.0	6,250.8	Middlesex @ 6413		0.00		
6,585.0	6,362.3	Burket @ 6585		0.00		
6,652.0	6,392.1	Tully @ 6652		0.00		
6,748.0	6,419.8	Marcellus @ 6748		0.00		

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
100.0	100.0	-0.1	-0.2	First Gyro @ 100	RECEIVED Office of Oil and Gas SEP 21 2017
5,738.0	5,661.1	41.6	449.7	Last Gyro @ 5738	
5,775.0	5,694.5	43.2	465.7	First SDI MWD @ 5775	
7,176.0	6,442.7	881.5	584.5	~As Drilled LP @ 7176 MD / 6442 TVD	
15,405.0	6,425.3	8,703.6	-1,962.5	Last SDI MWD @ 15405	
15,470.0	6,424.7	8,765.4	-1,982.6	Projection To Bit @ 15470 MD / 6424 TVD	

Checked By: _____ Approved By: _____ Date: _____

WV Department of Environmental Protection