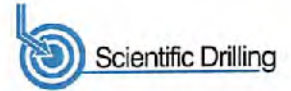




Scientific Drilling International
Survey Report - Geographic



Company:	Antero Resources	Local Co-ordinate Reference:	Well Arthur Unit 1H
Project:	Doddridge County WV	TVD Reference:	PD 522: GL 1001' + KB 18' @ 1019.0usft
Site:	Misery Pad: Anne/Arthur/Deano/Hardin/Michelle/Rexa	MD Reference:	PD 522: GL 1001' + KB 18' @ 1019.0usft
Well:	Arthur Unit 1H	North Reference:	Grid
Wellbore:	ST2	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)		

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WV Department of
Environmental Protection

Site	Misery Pad: Anne/Arthur/Deano/Hardin/Michelle/Rexa				
Site Position:		Northing:	14,293,344.77 usft	Latitude:	39° 21' 38.319 N
From:	Map	Easting:	1,711,355.33 usft	Longitude:	80° 44' 56.491 W
Position Uncertainty:	2.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.16 °

Well	Arthur Unit 1H, Marcellus					
Well Position	+N/-S	0.0 usft	Northing:	14,293,373.60 usft	Latitude:	39° 21' 38.605 N
	+E/-W	0.0 usft	Easting:	1,711,345.85 usft	Longitude:	80° 44' 56.611 W
Position Uncertainty	2.0 usft		Wellhead Elevation:	1,014.0 usft	Ground Level:	1,001.0 usft

Wellbore	ST2				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	3/22/2016	-8.58	66.74	52,099

Design	As Drilled				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	6,679.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	338.00	

Survey Program	Date	4/5/2016			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
105.0	5,730.0	Survey #6 Def KOP Gyro (Original Wellpa	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4	
5,761.0	6,679.0	Survey #6 - ST 1 SDI EM (ST1)	SDI MWD	Scientific Drilling Intl. MWD - Standard ver 1.0.1	
6,712.0	16,985.0	As Drilled (ST2)	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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.0	0.00	0.00	0.0	0.0	0.0	14,293,373.60	1,711,345.85	39° 21' 38.605 N	80° 44' 56.611 W
105.0	0.07	357.14	105.0	0.1	0.0	14,293,373.66	1,711,345.85	39° 21' 38.605 N	80° 44' 56.611 W
130.0	0.08	328.32	130.0	0.1	0.0	14,293,373.69	1,711,345.84	39° 21' 38.605 N	80° 44' 56.611 W
155.0	0.05	273.44	155.0	0.1	0.0	14,293,373.71	1,711,345.82	39° 21' 38.606 N	80° 44' 56.612 W
180.0	0.05	166.41	180.0	0.1	0.0	14,293,373.70	1,711,345.81	39° 21' 38.606 N	80° 44' 56.612 W
205.0	0.04	188.20	205.0	0.1	0.0	14,293,373.68	1,711,345.81	39° 21' 38.605 N	80° 44' 56.612 W
230.0	0.05	222.93	230.0	0.1	0.0	14,293,373.66	1,711,345.80	39° 21' 38.605 N	80° 44' 56.612 W
255.0	0.06	294.10	255.0	0.1	-0.1	14,293,373.66	1,711,345.78	39° 21' 38.605 N	80° 44' 56.612 W
280.0	0.08	309.99	280.0	0.1	-0.1	14,293,373.68	1,711,345.76	39° 21' 38.606 N	80° 44' 56.612 W



Scientific Drilling International
Survey Report - Geographic



Company: Antero Resources
Project: Doddridge County WV
Site: Misery Pad:
Anne/Arthur/Deano/Hardin/Michelle/Rexa
Well: Arthur Unit 1H
Wellbore: ST2
Design: As Drilled

Local Co-ordinate Reference: Well Arthur Unit 1H
TVD Reference: PD 522: GL 1001' + KB 18' @ 1019.0usft
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
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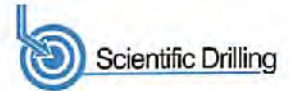
Survey

WV Department of
Environmental Protection

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
305.0	0.08	13.33	305.0	0.1	-0.1	14,293,373.71	1,711,345.75	39° 21' 38.606 N	80° 44' 56.612 W
330.0	0.12	7.14	330.0	0.1	-0.1	14,293,373.75	1,711,345.75	39° 21' 38.606 N	80° 44' 56.612 W
355.0	0.11	71.00	355.0	0.2	-0.1	14,293,373.78	1,711,345.78	39° 21' 38.606 N	80° 44' 56.612 W
380.0	0.15	87.97	380.0	0.2	0.0	14,293,373.79	1,711,345.83	39° 21' 38.606 N	80° 44' 56.611 W
405.0	0.14	71.67	405.0	0.2	0.0	14,293,373.80	1,711,345.90	39° 21' 38.607 N	80° 44' 56.611 W
430.0	0.12	102.32	430.0	0.2	0.1	14,293,373.81	1,711,345.95	39° 21' 38.607 N	80° 44' 56.610 W
455.0	0.12	89.93	455.0	0.2	0.2	14,293,373.80	1,711,346.00	39° 21' 38.607 N	80° 44' 56.609 W
480.0	0.08	98.81	480.0	0.2	0.2	14,293,373.80	1,711,346.05	39° 21' 38.606 N	80° 44' 56.609 W
505.0	0.07	114.72	505.0	0.2	0.2	14,293,373.79	1,711,346.08	39° 21' 38.606 N	80° 44' 56.608 W
530.0	0.05	116.83	530.0	0.2	0.3	14,293,373.78	1,711,346.10	39° 21' 38.606 N	80° 44' 56.608 W
555.0	0.03	225.09	555.0	0.2	0.3	14,293,373.77	1,711,346.11	39° 21' 38.606 N	80° 44' 56.608 W
580.0	0.08	301.46	580.0	0.2	0.2	14,293,373.77	1,711,346.09	39° 21' 38.606 N	80° 44' 56.608 W
605.0	0.81	268.95	605.0	0.2	0.1	14,293,373.84	1,711,345.90	39° 21' 38.607 N	80° 44' 56.610 W
630.0	1.50	287.82	630.0	0.4	-0.4	14,293,374.00	1,711,345.43	39° 21' 38.608 N	80° 44' 56.617 W
655.0	1.94	286.34	655.0	0.6	-1.1	14,293,374.22	1,711,344.71	39° 21' 38.611 N	80° 44' 56.626 W
680.0	2.36	264.52	680.0	0.9	-2.0	14,293,374.46	1,711,343.80	39° 21' 38.613 N	80° 44' 56.637 W
705.0	3.11	279.10	704.9	1.1	-3.2	14,293,374.70	1,711,342.64	39° 21' 38.615 N	80° 44' 56.652 W
730.0	3.44	276.99	729.9	1.3	-4.6	14,293,374.90	1,711,341.22	39° 21' 38.618 N	80° 44' 56.670 W
755.0	4.01	275.11	754.8	1.5	-6.2	14,293,375.07	1,711,339.61	39° 21' 38.619 N	80° 44' 56.691 W
780.0	4.78	272.58	779.8	1.6	-8.2	14,293,375.19	1,711,337.70	39° 21' 38.621 N	80° 44' 56.715 W
805.0	5.12	272.90	804.7	1.7	-10.3	14,293,375.30	1,711,335.54	39° 21' 38.622 N	80° 44' 56.742 W
830.0	5.96	273.97	829.6	1.8	-12.7	14,293,375.44	1,711,333.13	39° 21' 38.623 N	80° 44' 56.773 W
855.0	6.36	273.56	854.4	2.0	-15.4	14,293,375.62	1,711,330.46	39° 21' 38.625 N	80° 44' 56.807 W
880.0	6.46	274.15	879.3	2.2	-18.2	14,293,375.81	1,711,327.67	39° 21' 38.627 N	80° 44' 56.843 W
905.0	6.59	273.94	904.1	2.4	-21.0	14,293,376.01	1,711,324.84	39° 21' 38.629 N	80° 44' 56.879 W
930.0	6.70	274.07	928.9	2.6	-23.9	14,293,376.21	1,711,321.95	39° 21' 38.631 N	80° 44' 56.915 W
955.0	6.72	274.26	953.8	2.8	-26.8	14,293,376.42	1,711,319.04	39° 21' 38.633 N	80° 44' 56.953 W
980.0	6.73	273.99	978.6	3.0	-29.7	14,293,376.63	1,711,316.12	39° 21' 38.635 N	80° 44' 56.990 W
1,005.0	6.82	273.59	1,003.4	3.2	-32.7	14,293,376.83	1,711,313.17	39° 21' 38.637 N	80° 44' 57.027 W
1,030.0	6.72	273.17	1,028.2	3.4	-35.6	14,293,377.00	1,711,310.23	39° 21' 38.639 N	80° 44' 57.065 W
1,055.0	6.68	272.18	1,053.1	3.5	-38.5	14,293,377.14	1,711,307.34	39° 21' 38.641 N	80° 44' 57.102 W
1,080.0	6.38	272.40	1,077.9	3.6	-41.3	14,293,377.25	1,711,304.52	39° 21' 38.642 N	80° 44' 57.137 W
1,105.0	5.93	273.32	1,102.8	3.8	-44.0	14,293,377.38	1,711,301.84	39° 21' 38.643 N	80° 44' 57.172 W
1,130.0	5.45	273.34	1,127.6	3.9	-46.5	14,293,377.53	1,711,299.37	39° 21' 38.645 N	80° 44' 57.203 W
1,155.0	5.03	273.71	1,152.5	4.1	-48.8	14,293,377.67	1,711,297.09	39° 21' 38.646 N	80° 44' 57.232 W
1,180.0	4.62	274.79	1,177.4	4.2	-50.9	14,293,377.82	1,711,294.99	39° 21' 38.648 N	80° 44' 57.259 W
1,205.0	4.27	275.82	1,202.4	4.4	-52.8	14,293,378.00	1,711,293.07	39° 21' 38.649 N	80° 44' 57.283 W
1,230.0	3.99	276.33	1,227.3	4.6	-54.6	14,293,378.19	1,711,291.27	39° 21' 38.651 N	80° 44' 57.306 W
1,255.0	3.80	276.58	1,252.2	4.8	-56.3	14,293,378.38	1,711,289.59	39° 21' 38.653 N	80° 44' 57.328 W
1,280.0	3.54	277.77	1,277.2	5.0	-57.8	14,293,378.58	1,711,288.00	39° 21' 38.655 N	80° 44' 57.348 W
1,305.0	3.26	276.70	1,302.2	5.2	-59.3	14,293,378.77	1,711,286.53	39° 21' 38.657 N	80° 44' 57.367 W
1,330.0	3.01	276.10	1,327.1	5.3	-60.7	14,293,378.92	1,711,285.17	39° 21' 38.659 N	80° 44' 57.384 W
1,355.0	2.87	275.28	1,352.1	5.4	-62.0	14,293,379.05	1,711,283.89	39° 21' 38.660 N	80° 44' 57.400 W
1,380.0	2.77	274.37	1,377.1	5.5	-63.2	14,293,379.15	1,711,282.67	39° 21' 38.661 N	80° 44' 57.416 W
1,405.0	2.55	271.96	1,402.0	5.6	-64.3	14,293,379.22	1,711,281.51	39° 21' 38.662 N	80° 44' 57.430 W
1,430.0	2.42	269.90	1,427.0	5.6	-65.4	14,293,379.23	1,711,280.43	39° 21' 38.662 N	80° 44' 57.444 W
1,455.0	2.48	270.29	1,452.0	5.6	-66.5	14,293,379.24	1,711,279.36	39° 21' 38.662 N	80° 44' 57.458 W
1,480.0	2.48	270.23	1,477.0	5.6	-67.6	14,293,379.24	1,711,278.28	39° 21' 38.662 N	80° 44' 57.472 W
1,505.0	2.13	270.33	1,501.9	5.6	-68.6	14,293,379.24	1,711,277.27	39° 21' 38.662 N	80° 44' 57.484 W
1,530.0	1.95	270.32	1,526.9	5.6	-69.5	14,293,379.25	1,711,276.38	39° 21' 38.662 N	80° 44' 57.496 W
1,555.0	1.89	272.37	1,551.9	5.7	-70.3	14,293,379.27	1,711,275.54	39° 21' 38.663 N	80° 44' 57.506 W
1,580.0	1.72	272.86	1,576.9	5.7	-71.1	14,293,379.31	1,711,274.78	39° 21' 38.663 N	80° 44' 57.516 W
1,605.0	1.56	271.82	1,601.9	5.7	-71.8	14,293,379.33	1,711,274.04	39° 21' 38.663 N	80° 44' 57.526 W
1,630.0	1.29	269.02	1,626.9	5.7	-72.4	14,293,379.34	1,711,273.42	39° 21' 38.663 N	80° 44' 57.533 W



Scientific Drilling International
Survey Report - Geographic



Company:	Antero Resources	Local Co-ordinate Reference:	Well Arthur Unit 1H
Project:	Doddridge County WV	TVD Reference:	PD 522: GL 1001' + KB 18' @ 1019.0usft
Site:	Misery Pad: Anne/Arthur/Deano/Hardin/Michelle/Rexa	MD Reference:	PD 522: GL 1001' + KB 18' @ 1019.0usft
Well:	Arthur Unit 1H	North Reference:	Grid
Wellbore:	ST2	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,655.0	1.32	270.77	1,651.9	5.7	-73.0	14,293,379.34	1,711,272.85	39° 21' 38.663 N	80° 44' 57.541 W
1,680.0	1.19	267.55	1,676.9	5.7	-73.5	14,293,379.33	1,711,272.30	39° 21' 38.663 N	80° 44' 57.548 W
1,705.0	1.03	268.39	1,701.9	5.7	-74.0	14,293,379.32	1,711,271.82	39° 21' 38.663 N	80° 44' 57.554 W
1,730.0	0.88	267.99	1,726.9	5.7	-74.4	14,293,379.30	1,711,271.40	39° 21' 38.663 N	80° 44' 57.559 W
1,755.0	0.75	264.54	1,751.9	5.7	-74.8	14,293,379.28	1,711,271.05	39° 21' 38.663 N	80° 44' 57.564 W
1,780.0	0.69	265.17	1,776.9	5.7	-75.1	14,293,379.25	1,711,270.74	39° 21' 38.662 N	80° 44' 57.568 W
1,805.0	0.70	261.91	1,801.8	5.6	-75.4	14,293,379.22	1,711,270.43	39° 21' 38.662 N	80° 44' 57.571 W
1,830.0	0.62	269.60	1,826.8	5.6	-75.7	14,293,379.20	1,711,270.15	39° 21' 38.662 N	80° 44' 57.575 W
1,855.0	0.62	275.24	1,851.8	5.6	-76.0	14,293,379.21	1,711,269.88	39° 21' 38.662 N	80° 44' 57.579 W
1,880.0	0.59	270.56	1,876.8	5.6	-76.2	14,293,379.22	1,711,269.61	39° 21' 38.662 N	80° 44' 57.582 W
1,905.0	0.53	274.48	1,901.8	5.6	-76.5	14,293,379.23	1,711,269.37	39° 21' 38.662 N	80° 44' 57.585 W
1,930.0	0.62	271.90	1,926.8	5.6	-76.7	14,293,379.25	1,711,269.12	39° 21' 38.662 N	80° 44' 57.588 W
1,955.0	0.51	273.80	1,951.8	5.7	-77.0	14,293,379.26	1,711,268.87	39° 21' 38.663 N	80° 44' 57.591 W
1,980.0	0.48	261.38	1,976.8	5.7	-77.2	14,293,379.25	1,711,268.66	39° 21' 38.663 N	80° 44' 57.594 W
2,005.0	0.50	264.14	2,001.8	5.6	-77.4	14,293,379.23	1,711,268.45	39° 21' 38.662 N	80° 44' 57.597 W
2,030.0	0.55	259.51	2,026.8	5.6	-77.6	14,293,379.19	1,711,268.22	39° 21' 38.662 N	80° 44' 57.600 W
2,055.0	0.48	256.09	2,051.8	5.5	-77.8	14,293,379.15	1,711,268.00	39° 21' 38.661 N	80° 44' 57.602 W
2,080.0	0.47	272.48	2,076.8	5.5	-78.1	14,293,379.12	1,711,267.80	39° 21' 38.661 N	80° 44' 57.605 W
2,105.0	0.52	271.25	2,101.8	5.5	-78.3	14,293,379.13	1,711,267.58	39° 21' 38.661 N	80° 44' 57.608 W
2,130.0	0.40	263.71	2,126.8	5.5	-78.5	14,293,379.12	1,711,267.38	39° 21' 38.661 N	80° 44' 57.610 W
2,155.0	0.37	263.35	2,151.8	5.5	-78.6	14,293,379.11	1,711,267.21	39° 21' 38.661 N	80° 44' 57.613 W
2,180.0	0.35	245.68	2,176.8	5.5	-78.8	14,293,379.06	1,711,267.06	39° 21' 38.661 N	80° 44' 57.614 W
2,205.0	0.35	247.22	2,201.8	5.4	-78.9	14,293,379.00	1,711,266.92	39° 21' 38.660 N	80° 44' 57.618 W
2,230.0	0.46	262.65	2,226.8	5.4	-79.1	14,293,378.96	1,711,266.75	39° 21' 38.660 N	80° 44' 57.618 W
2,255.0	0.37	256.02	2,251.8	5.3	-79.3	14,293,378.93	1,711,266.58	39° 21' 38.659 N	80° 44' 57.621 W
2,280.0	0.40	243.49	2,276.8	5.3	-79.4	14,293,378.87	1,711,266.42	39° 21' 38.659 N	80° 44' 57.623 W
2,305.0	0.31	256.22	2,301.8	5.2	-79.6	14,293,378.82	1,711,266.28	39° 21' 38.658 N	80° 44' 57.624 W
2,330.0	0.27	249.89	2,326.8	5.2	-79.7	14,293,378.78	1,711,266.16	39° 21' 38.658 N	80° 44' 57.626 W
2,355.0	0.25	258.21	2,351.8	5.1	-79.8	14,293,378.75	1,711,266.05	39° 21' 38.658 N	80° 44' 57.627 W
2,380.0	0.26	240.11	2,376.8	5.1	-79.9	14,293,378.71	1,711,265.94	39° 21' 38.657 N	80° 44' 57.629 W
2,405.0	0.46	263.94	2,401.8	5.1	-80.1	14,293,378.67	1,711,265.80	39° 21' 38.657 N	80° 44' 57.631 W
2,430.0	0.40	265.90	2,426.8	5.1	-80.2	14,293,378.65	1,711,265.61	39° 21' 38.657 N	80° 44' 57.633 W
2,455.0	0.20	257.35	2,451.8	5.0	-80.4	14,293,378.64	1,711,265.48	39° 21' 38.657 N	80° 44' 57.635 W
2,480.0	0.22	258.31	2,476.8	5.0	-80.5	14,293,378.62	1,711,265.39	39° 21' 38.658 N	80° 44' 57.636 W
2,505.0	0.23	251.13	2,501.8	5.0	-80.6	14,293,378.59	1,711,265.30	39° 21' 38.658 N	80° 44' 57.637 W
2,530.0	0.23	244.48	2,526.8	5.0	-80.6	14,293,378.55	1,711,265.20	39° 21' 38.658 N	80° 44' 57.638 W
2,555.0	0.16	243.01	2,551.8	4.9	-80.7	14,293,378.51	1,711,265.12	39° 21' 38.655 N	80° 44' 57.639 W
2,580.0	0.41	248.33	2,576.8	4.9	-80.8	14,293,378.46	1,711,265.00	39° 21' 38.655 N	80° 44' 57.641 W
2,605.0	0.43	264.13	2,601.8	4.8	-81.0	14,293,378.42	1,711,264.83	39° 21' 38.654 N	80° 44' 57.643 W
2,630.0	0.34	289.85	2,626.8	4.8	-81.2	14,293,378.41	1,711,264.66	39° 21' 38.654 N	80° 44' 57.645 W
2,655.0	0.34	262.49	2,651.8	4.8	-81.3	14,293,378.40	1,711,264.51	39° 21' 38.654 N	80° 44' 57.647 W
2,680.0	0.34	248.59	2,676.8	4.8	-81.5	14,293,378.36	1,711,264.37	39° 21' 38.654 N	80° 44' 57.649 W
2,705.0	0.40	252.31	2,701.8	4.7	-81.6	14,293,378.31	1,711,264.22	39° 21' 38.653 N	80° 44' 57.651 W
2,730.0	0.37	259.22	2,726.8	4.7	-81.8	14,293,378.27	1,711,264.06	39° 21' 38.653 N	80° 44' 57.653 W
2,755.0	0.29	274.73	2,751.8	4.7	-81.9	14,293,378.26	1,711,263.91	39° 21' 38.653 N	80° 44' 57.655 W
2,780.0	0.25	277.67	2,776.8	4.7	-82.1	14,293,378.27	1,711,263.80	39° 21' 38.653 N	80° 44' 57.656 W
2,805.0	0.39	257.26	2,801.8	4.7	-82.2	14,293,378.27	1,711,263.66	39° 21' 38.653 N	80° 44' 57.658 W
2,830.0	0.45	260.61	2,826.8	4.7	-82.4	14,293,378.25	1,711,263.47	39° 21' 38.653 N	80° 44' 57.660 W
2,855.0	0.42	252.49	2,851.8	4.6	-82.6	14,293,378.23	1,711,263.29	39° 21' 38.653 N	80° 44' 57.663 W
2,880.0	0.52	264.18	2,876.8	4.6	-82.8	14,293,378.20	1,711,263.08	39° 21' 38.652 N	80° 44' 57.665 W
2,905.0	0.53	268.01	2,901.8	4.6	-83.0	14,293,378.19	1,711,262.85	39° 21' 38.652 N	80° 44' 57.668 W
2,930.0	0.51	271.80	2,926.8	4.6	-83.2	14,293,378.19	1,711,262.63	39° 21' 38.652 N	80° 44' 57.671 W
2,955.0	0.57	274.75	2,951.8	4.6	-83.5	14,293,378.20	1,711,262.39	39° 21' 38.652 N	80° 44' 57.674 W
2,980.0	0.46	280.59	2,976.8	4.6	-83.7	14,293,378.23	1,711,262.17	39° 21' 38.653 N	80° 44' 57.677 W

WV Department of Environmental Protection



Scientific Drilling International
Survey Report - Geographic



Company:	Antero Resources	Local Co-ordinate Reference:	Well Arthur Unit 1H
Project:	Doddridge County WV	TVD Reference:	PD 522: GL 1001' + KB 18' @ 1019.0usft
Site:	Misery Pad: Anne/Arthur/Deano/Hardin/Michelle/Rexa	MD Reference:	PD 522: GL 1001' + KB 18' @ 1019.0usft
Well:	Arthur Unit 1H	North Reference:	Grid
Wellbore:	ST2	Survey Calculation Method:	Minimum Curvature
Design:	As Drilled	Database:	Antero NE

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Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
3,005.0	0.43	277.45	3,001.8	4.7	-83.9	14,293,378.26	1,711,261.98	39° 21' 38.653 N	80° 44' 57.679 W	
3,030.0	0.38	275.25	3,026.8	4.7	-84.0	14,293,378.28	1,711,261.80	39° 21' 38.653 N	80° 44' 57.681 W	
3,055.0	0.41	284.09	3,051.8	4.7	-84.2	14,293,378.28	1,711,261.83	39° 21' 38.653 N	80° 44' 57.684 W	
3,080.0	0.45	266.04	3,076.8	4.7	-84.4	14,293,378.26	1,711,261.44	39° 21' 38.653 N	80° 44' 57.686 W	
3,105.0	0.48	280.96	3,101.8	4.6	-84.6	14,293,378.24	1,711,261.24	39° 21' 38.653 N	80° 44' 57.689 W	
3,130.0	0.53	265.93	3,126.8	4.6	-84.8	14,293,378.21	1,711,261.02	39° 21' 38.652 N	80° 44' 57.691 W	
3,155.0	0.55	288.34	3,151.8	4.6	-85.1	14,293,378.20	1,711,260.79	39° 21' 38.652 N	80° 44' 57.694 W	
3,180.0	0.60	268.37	3,176.8	4.6	-85.3	14,293,378.20	1,711,260.54	39° 21' 38.652 N	80° 44' 57.698 W	
3,205.0	0.53	272.05	3,201.8	4.6	-85.6	14,293,378.20	1,711,260.29	39° 21' 38.652 N	80° 44' 57.701 W	
3,230.0	0.53	275.24	3,226.8	4.6	-85.8	14,293,378.21	1,711,260.06	39° 21' 38.652 N	80° 44' 57.704 W	
3,255.0	0.46	278.95	3,251.8	4.6	-86.0	14,293,378.24	1,711,259.85	39° 21' 38.653 N	80° 44' 57.706 W	
3,280.0	0.51	283.21	3,276.8	4.7	-86.2	14,293,378.28	1,711,259.64	39° 21' 38.653 N	80° 44' 57.709 W	
3,305.0	0.42	272.70	3,301.8	4.7	-86.4	14,293,378.31	1,711,259.44	39° 21' 38.653 N	80° 44' 57.712 W	
3,330.0	0.44	267.29	3,326.8	4.7	-86.6	14,293,378.31	1,711,259.25	39° 21' 38.653 N	80° 44' 57.714 W	
3,355.0	0.43	264.61	3,351.8	4.7	-86.8	14,293,378.29	1,711,259.06	39° 21' 38.653 N	80° 44' 57.716 W	
3,380.0	0.55	263.35	3,376.8	4.7	-87.0	14,293,378.27	1,711,258.85	39° 21' 38.653 N	80° 44' 57.719 W	
3,405.0	0.51	262.77	3,401.8	4.6	-87.2	14,293,378.24	1,711,258.62	39° 21' 38.653 N	80° 44' 57.722 W	
3,430.0	0.59	286.80	3,426.8	4.6	-87.5	14,293,378.22	1,711,258.38	39° 21' 38.653 N	80° 44' 57.725 W	
3,455.0	0.59	268.86	3,451.8	4.6	-87.7	14,293,378.21	1,711,258.12	39° 21' 38.653 N	80° 44' 57.728 W	
3,480.0	0.58	263.53	3,476.8	4.6	-88.0	14,293,378.20	1,711,257.87	39° 21' 38.652 N	80° 44' 57.732 W	
3,505.0	0.57	266.97	3,501.8	4.6	-88.2	14,293,378.17	1,711,257.62	39° 21' 38.652 N	80° 44' 57.735 W	
3,530.0	0.59	266.96	3,526.8	4.6	-88.5	14,293,378.16	1,711,257.37	39° 21' 38.652 N	80° 44' 57.738 W	
3,555.0	0.57	269.61	3,551.8	4.6	-88.7	14,293,378.15	1,711,257.12	39° 21' 38.652 N	80° 44' 57.741 W	
3,580.0	0.57	273.27	3,576.8	4.6	-89.0	14,293,378.16	1,711,256.87	39° 21' 38.652 N	80° 44' 57.744 W	
3,605.0	0.57	276.39	3,601.8	4.6	-89.2	14,293,378.18	1,711,256.62	39° 21' 38.652 N	80° 44' 57.747 W	
3,630.0	0.45	277.11	3,626.8	4.6	-89.5	14,293,378.21	1,711,256.40	39° 21' 38.653 N	80° 44' 57.750 W	
3,655.0	0.53	276.69	3,651.8	4.6	-89.7	14,293,378.23	1,711,256.19	39° 21' 38.653 N	80° 44' 57.753 W	
3,680.0	0.49	276.17	3,676.8	4.7	-89.9	14,293,378.26	1,711,255.96	39° 21' 38.653 N	80° 44' 57.756 W	
3,705.0	0.48	269.33	3,701.8	4.7	-90.1	14,293,378.27	1,711,255.75	39° 21' 38.653 N	80° 44' 57.759 W	
3,730.0	0.58	262.34	3,726.8	4.6	-90.3	14,293,378.25	1,711,255.52	39° 21' 38.653 N	80° 44' 57.761 W	
3,755.0	0.55	267.23	3,751.8	4.6	-90.6	14,293,378.23	1,711,255.28	39° 21' 38.653 N	80° 44' 57.765 W	
3,780.0	0.60	267.70	3,776.8	4.6	-90.8	14,293,378.22	1,711,255.03	39° 21' 38.653 N	80° 44' 57.768 W	
3,805.0	0.61	267.95	3,801.8	4.6	-91.1	14,293,378.21	1,711,254.76	39° 21' 38.653 N	80° 44' 57.771 W	
3,830.0	0.59	265.31	3,826.8	4.6	-91.3	14,293,378.19	1,711,254.50	39° 21' 38.652 N	80° 44' 57.774 W	
3,855.0	0.66	263.68	3,851.8	4.6	-91.6	14,293,378.16	1,711,254.23	39° 21' 38.652 N	80° 44' 57.778 W	
3,880.0	0.57	270.89	3,876.8	4.5	-91.9	14,293,378.15	1,711,253.96	39° 21' 38.652 N	80° 44' 57.781 W	
3,905.0	0.61	268.65	3,901.8	4.5	-92.1	14,293,378.15	1,711,253.71	39° 21' 38.652 N	80° 44' 57.785 W	
3,930.0	0.59	268.91	3,926.8	4.5	-92.4	14,293,378.14	1,711,253.44	39° 21' 38.652 N	80° 44' 57.788 W	
3,955.0	0.64	266.11	3,951.8	4.5	-92.7	14,293,378.13	1,711,253.18	39° 21' 38.652 N	80° 44' 57.791 W	
3,980.0	0.58	267.75	3,976.8	4.5	-92.9	14,293,378.12	1,711,252.91	39° 21' 38.652 N	80° 44' 57.795 W	
4,005.0	0.55	269.91	4,001.8	4.5	-93.2	14,293,378.11	1,711,252.66	39° 21' 38.652 N	80° 44' 57.798 W	
4,030.0	0.60	270.13	4,026.8	4.5	-93.4	14,293,378.11	1,711,252.41	39° 21' 38.652 N	80° 44' 57.801 W	
4,055.0	0.66	271.39	4,051.8	4.5	-93.7	14,293,378.12	1,711,252.14	39° 21' 38.652 N	80° 44' 57.805 W	
4,080.0	0.60	269.75	4,076.8	4.5	-94.0	14,293,378.12	1,711,251.86	39° 21' 38.652 N	80° 44' 57.808 W	
4,105.0	0.44	268.43	4,101.8	4.5	-94.2	14,293,378.12	1,711,251.64	39° 21' 38.652 N	80° 44' 57.811 W	
4,130.0	0.39	270.49	4,126.8	4.5	-94.4	14,293,378.11	1,711,251.46	39° 21' 38.652 N	80° 44' 57.813 W	
4,155.0	0.61	270.10	4,151.8	4.5	-94.6	14,293,378.11	1,711,251.24	39° 21' 38.652 N	80° 44' 57.816 W	
4,180.0	0.56	279.87	4,176.8	4.5	-94.9	14,293,378.14	1,711,250.98	39° 21' 38.652 N	80° 44' 57.819 W	
4,205.0	0.52	280.30	4,201.8	4.6	-95.1	14,293,378.18	1,711,250.75	39° 21' 38.652 N	80° 44' 57.822 W	
4,230.0	0.49	281.85	4,226.8	4.6	-95.3	14,293,378.22	1,711,250.54	39° 21' 38.653 N	80° 44' 57.825 W	
4,255.0	0.47	283.37	4,251.8	4.7	-95.5	14,293,378.26	1,711,250.33	39° 21' 38.653 N	80° 44' 57.828 W	
4,280.0	0.88	245.93	4,276.8	4.6	-95.8	14,293,378.21	1,711,250.06	39° 21' 38.653 N	80° 44' 57.831 W	
4,305.0	0.57	266.50	4,301.8	4.5	-96.1	14,293,378.12	1,711,249.76	39° 21' 38.652 N	80° 44' 57.835 W	
4,330.0	0.58	260.23	4,326.8	4.5	-96.3	14,293,378.10	1,711,249.51	39° 21' 38.652 N	80° 44' 57.838 W	



Scientific Drilling International
Survey Report - Geographic



Company: Antero Resources
Project: Doddridge County WV
Site: Misery Pad
Anne/Arthur/Deano/Hardin/Michelle/Rexa
Well: Arthur Unit 1H
Wellbore: ST2
Design: As Drilled

Local Co-ordinate Reference: Well Arthur Unit 1H
TVD Reference: PD 522: GL 1001' + KB 18' @ 1019.0usft
MD Reference: PD 522: GL 1001' + KB 18' @ 1019.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Antero NE

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Survey

WV Department of
Environmental Protection

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,355.0	0.57	272.00	4,351.8	4.5	-96.6	14,293,378.08	1,711,249.26	39° 21' 38.651 N	80° 44' 57.841 W
4,380.0	0.61	288.17	4,376.8	4.5	-96.8	14,293,378.08	1,711,249.00	39° 21' 38.651 N	80° 44' 57.845 W
4,405.0	0.61	271.06	4,401.8	4.5	-97.1	14,293,378.08	1,711,248.74	39° 21' 38.651 N	80° 44' 57.848 W
4,430.0	0.64	270.66	4,426.7	4.5	-97.4	14,293,378.08	1,711,248.46	39° 21' 38.651 N	80° 44' 57.851 W
4,455.0	0.60	280.34	4,451.7	4.5	-97.7	14,293,378.11	1,711,248.19	39° 21' 38.652 N	80° 44' 57.855 W
4,480.0	0.59	283.09	4,476.7	4.6	-97.9	14,293,378.16	1,711,247.94	39° 21' 38.652 N	80° 44' 57.858 W
4,505.0	0.47	289.37	4,501.7	4.6	-96.1	14,293,378.22	1,711,247.72	39° 21' 38.653 N	80° 44' 57.861 W
4,530.0	0.47	283.61	4,526.7	4.7	-98.3	14,293,378.28	1,711,247.52	39° 21' 38.653 N	80° 44' 57.863 W
4,555.0	0.42	285.80	4,551.7	4.7	-98.5	14,293,378.33	1,711,247.33	39° 21' 38.654 N	80° 44' 57.866 W
4,580.0	0.48	270.31	4,576.7	4.8	-98.7	14,293,378.35	1,711,247.14	39° 21' 38.654 N	80° 44' 57.868 W
4,605.0	0.45	274.48	4,601.7	4.8	-98.9	14,293,378.36	1,711,246.94	39° 21' 38.654 N	80° 44' 57.871 W
4,630.0	0.54	267.51	4,626.7	4.8	-99.1	14,293,378.36	1,711,246.72	39° 21' 38.654 N	80° 44' 57.874 W
4,655.0	0.49	283.33	4,651.7	4.8	-99.3	14,293,378.38	1,711,246.50	39° 21' 38.655 N	80° 44' 57.876 W
4,680.0	0.57	273.98	4,676.7	4.8	-99.6	14,293,378.42	1,711,246.27	39° 21' 38.655 N	80° 44' 57.879 W
4,705.0	0.58	271.35	4,701.7	4.8	-99.8	14,293,378.43	1,711,246.03	39° 21' 38.655 N	80° 44' 57.882 W
4,730.0	0.53	272.97	4,726.7	4.8	-100.1	14,293,378.44	1,711,245.79	39° 21' 38.655 N	80° 44' 57.885 W
4,755.0	0.53	274.89	4,751.7	4.9	-100.3	14,293,378.45	1,711,245.56	39° 21' 38.655 N	80° 44' 57.888 W
4,780.0	0.52	283.52	4,776.7	4.9	-100.5	14,293,378.49	1,711,245.33	39° 21' 38.656 N	80° 44' 57.891 W
4,805.0	0.50	284.20	4,801.7	4.9	-100.7	14,293,378.54	1,711,245.12	39° 21' 38.656 N	80° 44' 57.894 W
4,830.0	0.51	293.67	4,826.7	5.0	-100.9	14,293,378.62	1,711,244.91	39° 21' 38.657 N	80° 44' 57.897 W
4,855.0	0.52	296.95	4,851.7	5.1	-101.1	14,293,378.71	1,711,244.71	39° 21' 38.658 N	80° 44' 57.899 W
4,880.0	0.51	300.96	4,876.7	5.2	-101.3	14,293,378.82	1,711,244.51	39° 21' 38.659 N	80° 44' 57.902 W
4,905.0	0.46	298.83	4,901.7	5.3	-101.5	14,293,378.93	1,711,244.33	39° 21' 38.660 N	80° 44' 57.904 W
4,930.0	0.46	304.46	4,926.7	5.4	-101.7	14,293,379.03	1,711,244.16	39° 21' 38.661 N	80° 44' 57.906 W
4,955.0	0.51	301.72	4,951.7	5.5	-101.9	14,293,379.15	1,711,243.98	39° 21' 38.662 N	80° 44' 57.908 W
4,980.0	0.42	306.60	4,976.7	5.7	-102.0	14,293,379.26	1,711,243.81	39° 21' 38.663 N	80° 44' 57.911 W
5,005.0	0.45	301.62	5,001.7	5.8	-102.2	14,293,379.37	1,711,243.65	39° 21' 38.664 N	80° 44' 57.913 W
5,030.0	0.46	305.49	5,026.7	5.9	-102.4	14,293,379.47	1,711,243.49	39° 21' 38.665 N	80° 44' 57.915 W
5,055.0	0.37	301.30	5,051.7	6.0	-102.5	14,293,379.58	1,711,243.34	39° 21' 38.666 N	80° 44' 57.917 W
5,080.0	0.42	288.63	5,076.7	6.0	-102.7	14,293,379.65	1,711,243.18	39° 21' 38.667 N	80° 44' 57.919 W
5,105.0	0.36	299.20	5,101.7	6.1	-102.8	14,293,379.72	1,711,243.02	39° 21' 38.668 N	80° 44' 57.921 W
5,130.0	0.45	285.72	5,126.7	6.2	-103.0	14,293,379.78	1,711,242.86	39° 21' 38.668 N	80° 44' 57.923 W
5,155.0	0.51	289.95	5,151.7	6.2	-103.2	14,293,379.85	1,711,242.66	39° 21' 38.669 N	80° 44' 57.925 W
5,180.0	0.50	292.47	5,176.7	6.3	-103.4	14,293,379.93	1,711,242.45	39° 21' 38.670 N	80° 44' 57.928 W
5,205.0	0.58	289.46	5,201.7	6.4	-103.6	14,293,380.01	1,711,242.23	39° 21' 38.671 N	80° 44' 57.931 W
5,230.0	0.55	298.30	5,226.7	6.5	-103.8	14,293,380.11	1,711,242.01	39° 21' 38.672 N	80° 44' 57.934 W
5,255.0	0.55	288.93	5,251.7	6.6	-104.1	14,293,380.21	1,711,241.79	39° 21' 38.673 N	80° 44' 57.936 W
5,280.0	0.57	298.76	5,276.7	6.7	-104.3	14,293,380.30	1,711,241.56	39° 21' 38.674 N	80° 44' 57.939 W
5,305.0	0.57	295.86	5,301.7	6.8	-104.5	14,293,380.42	1,711,241.34	39° 21' 38.675 N	80° 44' 57.942 W
5,330.0	0.56	288.43	5,326.7	6.9	-104.7	14,293,380.51	1,711,241.12	39° 21' 38.676 N	80° 44' 57.945 W
5,355.0	0.50	299.49	5,351.7	7.0	-104.9	14,293,380.60	1,711,240.91	39° 21' 38.677 N	80° 44' 57.948 W
5,380.0	0.57	301.23	5,376.7	7.1	-105.1	14,293,380.72	1,711,240.70	39° 21' 38.678 N	80° 44' 57.950 W
5,405.0	0.56	299.25	5,401.7	7.2	-105.4	14,293,380.85	1,711,240.49	39° 21' 38.679 N	80° 44' 57.953 W
5,430.0	0.59	300.71	5,426.7	7.4	-105.6	14,293,380.97	1,711,240.27	39° 21' 38.680 N	80° 44' 57.956 W
5,455.0	0.53	303.09	5,451.7	7.5	-105.8	14,293,381.10	1,711,240.07	39° 21' 38.682 N	80° 44' 57.958 W
5,480.0	0.62	298.93	5,476.7	7.6	-106.0	14,293,381.23	1,711,239.85	39° 21' 38.683 N	80° 44' 57.961 W
5,505.0	0.65	292.48	5,501.7	7.7	-106.2	14,293,381.35	1,711,239.60	39° 21' 38.684 N	80° 44' 57.964 W
5,530.0	0.61	303.73	5,526.7	7.9	-106.5	14,293,381.48	1,711,239.36	39° 21' 38.685 N	80° 44' 57.967 W
5,555.0	0.60	305.66	5,551.7	8.0	-106.7	14,293,381.63	1,711,239.14	39° 21' 38.687 N	80° 44' 57.970 W
5,580.0	0.53	291.57	5,576.7	8.1	-106.9	14,293,381.75	1,711,238.93	39° 21' 38.688 N	80° 44' 57.973 W
5,605.0	0.52	284.24	5,601.7	8.2	-107.1	14,293,381.82	1,711,238.71	39° 21' 38.689 N	80° 44' 57.975 W
5,630.0	0.45	295.77	5,626.7	8.3	-107.3	14,293,381.89	1,711,238.51	39° 21' 38.689 N	80° 44' 57.978 W
5,655.0	0.49	284.54	5,651.7	8.4	-107.5	14,293,381.96	1,711,238.32	39° 21' 38.690 N	80° 44' 57.980 W
5,680.0	0.42	283.90	5,676.7	8.4	-107.7	14,293,382.01	1,711,238.13	39° 21' 38.691 N	80° 44' 57.983 W



Scientific Drilling International
Survey Report - Geographic



Company: Antero Resources
Project: Doddridge County WV
Site: Misery Pad:
Anne/Arthur/Deano/Hardin/Michelle/Rexa
Well: Arthur Unit 1H
Wellbore: ST2
Design: As Drilled

Local Co-ordinate Reference: Well Arthur Unit 1H
TVD Reference: PD 522: GL 1001' + KB 18' @ 1019.0usft
MD Reference: PD 522: GL 1001' + KB 18' @ 1019.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Antero NE

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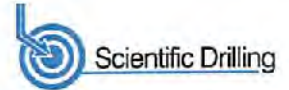
Survey

WV Department of
Environmental Protection

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
5,705.0	0.41	290.27	5,701.7	8.5	-107.9	14,293,382.06	1,711,237.96	39° 21' 38.691 N	80° 44' 57.985 W
5,730.0	0.44	288.57	5,726.7	8.5	-108.1	14,293,382.12	1,711,237.78	39° 21' 38.692 N	80° 44' 57.987 W
5,761.0	0.31	311.58	5,757.7	8.6	-108.2	14,293,382.21	1,711,237.61	39° 21' 38.693 N	80° 44' 57.990 W
5,792.0	1.41	221.81	5,788.7	8.4	-108.6	14,293,381.98	1,711,237.29	39° 21' 38.690 N	80° 44' 57.994 W
5,823.0	5.58	218.70	5,819.6	8.9	-109.8	14,293,380.52	1,711,236.09	39° 21' 38.676 N	80° 44' 58.009 W
5,854.0	9.51	217.70	5,850.4	3.7	-112.3	14,293,377.32	1,711,233.58	39° 21' 38.644 N	80° 44' 58.041 W
5,878.0	13.46	220.75	5,873.9	0.0	-115.3	14,293,373.63	1,711,230.54	39° 21' 38.608 N	80° 44' 58.080 W
5,908.0	17.82	222.54	5,902.8	-6.0	-120.7	14,293,367.60	1,711,225.16	39° 21' 38.549 N	80° 44' 58.149 W
5,939.0	21.57	222.14	5,931.9	-13.7	-127.7	14,293,359.88	1,711,218.13	39° 21' 38.472 N	80° 44' 58.236 W
5,970.0	26.55	221.27	5,960.2	-23.2	-136.1	14,293,350.44	1,711,209.73	39° 21' 38.379 N	80° 44' 58.346 W
6,001.0	30.25	221.16	5,987.5	-34.2	-145.8	14,293,339.35	1,711,200.02	39° 21' 38.270 N	80° 44' 58.470 W
6,032.0	32.15	220.38	6,014.0	-46.4	-156.3	14,293,327.19	1,711,189.53	39° 21' 38.150 N	80° 44' 58.604 W
6,063.0	33.80	219.80	6,040.0	-59.3	-167.2	14,293,314.28	1,711,178.67	39° 21' 38.023 N	80° 44' 58.743 W
6,093.0	35.51	217.94	6,064.7	-72.6	-177.9	14,293,301.00	1,711,167.97	39° 21' 37.892 N	80° 44' 58.879 W
6,124.0	38.79	218.78	6,089.4	-87.3	-189.5	14,293,286.32	1,711,156.35	39° 21' 37.747 N	80° 44' 59.026 W
6,155.0	42.47	220.21	6,112.9	-102.8	-202.3	14,293,270.75	1,711,143.50	39° 21' 37.593 N	80° 44' 59.192 W
6,186.0	44.82	221.69	6,135.4	-119.0	-216.4	14,293,254.60	1,711,129.48	39° 21' 37.434 N	80° 44' 59.371 W
6,217.0	44.01	225.64	6,157.5	-134.7	-231.3	14,293,238.91	1,711,114.51	39° 21' 37.279 N	80° 44' 59.562 W
6,248.0	43.93	230.58	6,179.6	-149.1	-247.4	14,293,224.55	1,711,098.50	39° 21' 37.138 N	80° 44' 59.767 W
6,279.0	46.49	235.31	6,201.7	-162.3	-264.9	14,293,211.31	1,711,080.94	39° 21' 37.007 N	80° 44' 59.991 W
6,309.0	49.90	239.94	6,221.7	-174.2	-283.8	14,293,199.37	1,711,062.05	39° 21' 36.890 N	80° 45' 0.232 W
6,340.0	51.18	245.94	6,241.4	-185.1	-305.1	14,293,188.50	1,711,040.75	39° 21' 36.783 N	80° 45' 0.504 W
6,371.0	51.72	249.93	6,260.7	-194.2	-327.6	14,293,179.40	1,711,018.29	39° 21' 36.693 N	80° 45' 0.790 W
6,402.0	51.85	253.94	6,279.9	-201.8	-350.7	14,293,171.85	1,710,995.14	39° 21' 36.619 N	80° 45' 1.085 W
6,433.0	52.11	257.59	6,299.0	-207.8	-374.4	14,293,165.85	1,710,971.48	39° 21' 36.561 N	80° 45' 1.387 W
6,463.0	51.32	261.31	6,317.6	-212.1	-397.5	14,293,161.53	1,710,948.34	39° 21' 36.519 N	80° 45' 1.682 W
6,494.0	49.39	263.98	6,337.4	-215.1	-421.2	14,293,158.47	1,710,924.67	39° 21' 36.489 N	80° 45' 1.983 W
6,525.0	47.19	266.14	6,358.0	-217.1	-444.2	14,293,156.47	1,710,901.62	39° 21' 36.470 N	80° 45' 2.277 W
6,526.0	47.14	266.22	6,358.7	-217.2	-445.0	14,293,156.42	1,710,900.88	39° 21' 36.469 N	80° 45' 2.286 W
SCMR @ 6526									
6,556.0	45.59	268.54	6,379.4	-218.2	-466.7	14,293,155.42	1,710,879.20	39° 21' 36.460 N	80° 45' 2.562 W
6,587.0	44.44	270.48	6,401.3	-218.4	-488.6	14,293,155.23	1,710,857.28	39° 21' 36.459 N	80° 45' 2.841 W
6,617.0	43.65	273.91	6,422.8	-217.6	-509.4	14,293,156.03	1,710,836.44	39° 21' 36.467 N	80° 45' 3.107 W
6,648.0	43.50	277.18	6,445.3	-215.5	-530.7	14,293,158.09	1,710,815.18	39° 21' 36.488 N	80° 45' 3.378 W
6,679.0	43.98	281.10	6,467.7	-212.1	-551.8	14,293,161.49	1,710,794.03	39° 21' 36.522 N	80° 45' 3.647 W
6,712.0	41.27	272.64	6,492.0	-209.4	-574.0	14,293,164.20	1,710,771.89	39° 21' 36.550 N	80° 45' 3.929 W
6,742.0	43.99	275.32	6,514.1	-208.0	-594.2	14,293,165.63	1,710,751.63	39° 21' 36.564 N	80° 45' 4.187 W
6,771.0	46.71	280.60	6,534.5	-205.1	-614.6	14,293,168.50	1,710,731.21	39° 21' 36.593 N	80° 45' 4.447 W
MDLX @ 6771									
6,773.0	48.91	280.95	6,535.8	-204.8	-616.1	14,293,168.78	1,710,729.78	39° 21' 36.596 N	80° 45' 4.465 W
6,804.0	51.61	286.48	6,556.1	-199.2	-638.9	14,293,174.38	1,710,706.99	39° 21' 36.652 N	80° 45' 4.755 W
6,835.0	56.24	289.39	6,574.3	-191.5	-662.7	14,293,182.11	1,710,683.17	39° 21' 36.729 N	80° 45' 5.058 W
6,865.0	58.33	293.19	6,590.5	-182.3	-686.2	14,293,191.28	1,710,659.67	39° 21' 36.821 N	80° 45' 5.357 W
6,896.0	58.27	300.29	6,606.8	-170.5	-709.7	14,293,203.13	1,710,636.14	39° 21' 36.936 N	80° 45' 5.656 W
6,927.0	58.90	305.70	6,623.0	-156.1	-731.9	14,293,217.54	1,710,613.96	39° 21' 37.081 N	80° 45' 5.936 W
6,958.0	59.25	309.90	6,638.9	-139.8	-752.9	14,293,233.83	1,710,592.96	39° 21' 37.243 N	80° 45' 6.205 W
6,989.0	60.68	315.87	6,654.5	-121.5	-772.5	14,293,252.09	1,710,573.31	39° 21' 37.424 N	80° 45' 6.455 W
7,014.0	61.69	320.42	6,666.5	-105.2	-787.1	14,293,268.40	1,710,558.71	39° 21' 37.596 N	80° 45' 6.640 W
BRKT @ 7014									
7,019.0	61.91	321.32	6,668.9	-101.6	-789.9	14,293,271.82	1,710,555.93	39° 21' 37.620 N	80° 45' 6.675 W
7,050.0	63.01	326.79	6,683.2	-79.5	-806.0	14,293,294.06	1,710,539.80	39° 21' 37.840 N	80° 45' 6.880 W
7,076.0	64.13	331.83	6,694.6	-59.5	-817.9	14,293,314.08	1,710,527.93	39° 21' 38.038 N	80° 45' 7.031 W
TLLY @ 7076									



Scientific Drilling International
Survey Report - Geographic



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Site: Misery Pad:
Anne/Arthur/Deano/Hardin/Michelle/Rexa
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Design: As Drilled

Local Co-ordinate Reference: Well Arthur Unit 1H
TVD Reference: PD 522: GL 1001' + KB 18' @ 1019.0usft
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
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Survey										WV Department of Environmental Protection	
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude		
7,081.0	84.36	332.79	6,697.0	-55.5	-820.0	14,293,318.07	1,710,525.84	39° 21' 36.078 N	80° 45' 7.057 W		
7,112.0	65.56	334.29	6,710.1	-30.4	-832.5	14,293,343.21	1,710,513.33	39° 21' 38.327 N	80° 45' 7.216 W		
7,143.0	86.32	335.16	6,722.7	-4.8	-844.6	14,293,368.81	1,710,501.24	39° 21' 36.580 N	80° 45' 7.369 W		
7,174.0	68.17	335.43	6,734.7	21.2	-856.6	14,293,394.78	1,710,489.29	39° 21' 38.837 N	80° 45' 7.520 W		
7,189.0	70.02	336.82	6,740.1	34.0	-862.2	14,293,407.59	1,710,483.62	39° 21' 36.964 N	80° 45' 7.592 W		
HMLN @ 7189											
7,204.0	71.88	338.17	6,745.0	47.1	-867.7	14,293,420.69	1,710,478.20	39° 21' 39.094 N	80° 45' 7.660 W		
7,210.0	72.48	338.52	6,746.8	52.4	-869.8	14,293,426.00	1,710,476.09	39° 21' 39.146 N	80° 45' 7.687 W		
MRCL_HOT @ 7210											
7,235.0	74.97	339.97	6,753.8	74.8	-878.3	14,293,448.44	1,710,467.59	39° 21' 39.368 N	80° 45' 7.794 W		
7,266.0	76.60	340.18	6,761.4	103.1	-888.5	14,293,476.69	1,710,457.35	39° 21' 39.648 N	80° 45' 7.924 W		
7,297.0	78.12	339.62	6,768.2	131.5	-898.9	14,293,505.10	1,710,448.95	39° 21' 39.929 N	80° 45' 8.055 W		
7,328.0	79.60	338.74	6,774.2	159.9	-909.7	14,293,533.52	1,710,436.14	39° 21' 40.211 N	80° 45' 8.192 W		
7,359.0	80.63	338.35	6,779.5	188.3	-920.9	14,293,561.95	1,710,424.97	39° 21' 40.492 N	80° 45' 8.333 W		
7,390.0	83.55	338.31	6,783.8	218.9	-932.2	14,293,590.48	1,710,413.63	39° 21' 40.774 N	80° 45' 8.477 W		
7,420.0	87.82	338.89	6,785.0	244.7	-943.1	14,293,618.33	1,710,402.72	39° 21' 41.050 N	80° 45' 8.615 W		
7,513.0	90.61	336.75	6,787.3	330.8	-978.2	14,293,704.42	1,710,367.62	39° 21' 41.902 N	80° 45' 9.059 W		
7,605.0	88.76	335.94	6,787.8	415.1	-1,015.1	14,293,788.69	1,710,330.71	39° 21' 42.736 N	80° 45' 9.526 W		
7,698.0	88.42	338.45	6,790.1	500.8	-1,051.2	14,293,874.38	1,710,294.68	39° 21' 43.565 N	80° 45' 9.982 W		
7,791.0	87.91	339.10	6,793.1	587.4	-1,084.8	14,293,961.03	1,710,261.03	39° 21' 44.442 N	80° 45' 10.407 W		
7,883.0	90.27	339.97	6,794.5	673.6	-1,117.0	14,294,047.21	1,710,228.87	39° 21' 45.295 N	80° 45' 10.814 W		
7,976.0	89.76	340.42	6,794.5	761.1	-1,148.5	14,294,134.70	1,710,197.36	39° 21' 46.181 N	80° 45' 11.212 W		
8,068.0	89.80	339.13	6,794.9	847.4	-1,180.3	14,294,221.03	1,710,165.55	39° 21' 47.016 N	80° 45' 11.614 W		
8,161.0	89.95	337.71	6,795.1	933.9	-1,214.5	14,294,307.51	1,710,131.35	39° 21' 47.872 N	80° 45' 12.047 W		
8,253.0	90.81	337.49	6,794.5	1,019.0	-1,249.6	14,294,392.56	1,710,096.29	39° 21' 48.714 N	80° 45' 12.491 W		
8,346.0	90.17	337.88	6,793.7	1,105.0	-1,284.9	14,294,478.59	1,710,060.98	39° 21' 49.565 N	80° 45' 12.937 W		
8,439.0	89.93	338.30	6,793.6	1,191.3	-1,319.6	14,294,564.88	1,710,026.28	39° 21' 50.419 N	80° 45' 13.376 W		
8,532.0	90.24	337.36	6,793.5	1,277.4	-1,354.7	14,294,651.00	1,709,991.18	39° 21' 51.272 N	80° 45' 13.820 W		
8,624.0	90.27	336.83	6,793.0	1,362.1	-1,390.5	14,294,735.74	1,709,955.36	39° 21' 52.110 N	80° 45' 14.274 W		
8,717.0	90.00	337.70	6,792.8	1,447.9	-1,426.4	14,294,821.51	1,709,919.42	39° 21' 52.960 N	80° 45' 14.729 W		
8,810.0	90.61	340.21	6,792.3	1,534.7	-1,459.8	14,294,908.30	1,709,886.03	39° 21' 53.819 N	80° 45' 15.151 W		
8,902.0	89.63	339.48	6,792.1	1,621.1	-1,491.5	14,294,994.66	1,709,853.33	39° 21' 54.673 N	80° 45' 15.552 W		
8,994.0	90.54	340.52	6,792.0	1,707.5	-1,523.0	14,295,081.11	1,709,822.86	39° 21' 55.529 N	80° 45' 15.949 W		
9,087.0	91.20	339.21	6,790.6	1,794.8	-1,555.0	14,295,168.42	1,709,790.65	39° 21' 56.393 N	80° 45' 16.354 W		
9,180.0	90.53	337.73	6,789.2	1,881.3	-1,589.1	14,295,254.92	1,709,756.73	39° 21' 57.249 N	80° 45' 16.766 W		
9,272.0	89.73	335.44	6,789.0	1,965.7	-1,625.7	14,295,339.33	1,709,720.17	39° 21' 58.085 N	80° 45' 17.248 W		
9,365.0	88.92	336.83	6,790.1	2,050.8	-1,663.3	14,295,424.37	1,709,682.55	39° 21' 58.927 N	80° 45' 17.725 W		
9,457.0	91.61	338.06	6,789.6	2,135.7	-1,698.6	14,295,509.33	1,709,647.27	39° 21' 59.768 N	80° 45' 18.171 W		
9,550.0	90.70	336.54	6,787.8	2,221.5	-1,734.5	14,295,595.10	1,709,611.39	39° 22' 0.617 N	80° 45' 18.625 W		
9,642.0	89.46	335.47	6,787.6	2,305.5	-1,771.9	14,295,679.15	1,709,573.97	39° 22' 1.449 N	80° 45' 19.099 W		
9,735.0	90.20	335.75	6,787.9	2,390.5	-1,809.5	14,295,764.18	1,709,536.31	39° 22' 2.290 N	80° 45' 19.576 W		
9,827.0	90.63	336.56	6,787.3	2,475.0	-1,846.0	14,295,848.64	1,709,499.66	39° 22' 3.127 N	80° 45' 20.037 W		
9,920.0	90.73	336.11	6,786.1	2,560.2	-1,883.3	14,295,933.82	1,709,462.53	39° 22' 3.970 N	80° 45' 20.510 W		
10,012.0	89.99	335.80	6,785.6	2,644.2	-1,920.8	14,296,017.83	1,709,425.05	39° 22' 4.801 N	80° 45' 20.984 W		
10,105.0	90.36	336.40	6,785.3	2,729.3	-1,958.5	14,296,102.86	1,709,387.37	39° 22' 5.643 N	80° 45' 21.461 W		
10,198.0	90.53	338.44	6,784.6	2,815.1	-1,994.2	14,296,188.72	1,709,351.66	39° 22' 6.493 N	80° 45' 21.913 W		
10,290.0	90.60	338.58	6,783.7	2,900.7	-2,027.9	14,296,274.32	1,709,317.96	39° 22' 7.340 N	80° 45' 22.339 W		
10,383.0	91.61	336.86	6,781.9	2,986.8	-2,063.1	14,296,360.36	1,709,282.72	39° 22' 8.192 N	80° 45' 22.785 W		
10,476.0	91.10	336.39	6,779.7	3,072.1	-2,100.0	14,296,445.71	1,709,245.85	39° 22' 9.037 N	80° 45' 23.252 W		
10,568.0	90.56	338.43	6,778.3	3,157.0	-2,135.3	14,296,530.64	1,709,210.52	39° 22' 9.877 N	80° 45' 23.699 W		
10,660.0	90.60	336.69	6,777.4	3,242.1	-2,170.4	14,296,615.67	1,709,175.40	39° 22' 10.719 N	80° 45' 24.144 W		
10,753.0	90.06	337.47	6,776.9	3,327.7	-2,206.7	14,296,701.32	1,709,139.19	39° 22' 11.567 N	80° 45' 24.602 W		
10,846.0	90.46	339.87	6,776.4	3,414.3	-2,240.5	14,296,787.94	1,709,105.36	39° 22' 12.424 N	80° 45' 25.030 W		
10,938.0	90.46	341.20	6,775.7	3,501.1	-2,271.1	14,296,874.58	1,709,074.70	39° 22' 13.283 N	80° 45' 25.417 W		



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JUL 17 2017

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
11,031.0	90.63	342.89	6,774.8	3,589.5	-2,299.8	14,296,953.14	1,709,045.04	39° 22' 14.158 N	80° 45' 25.780 W
11,124.0	91.11	340.84	6,773.4	3,677.9	-2,328.8	14,297,051.51	1,709,017.10	39° 22' 15.033 N	80° 45' 26.145 W
11,216.0	90.37	339.86	6,772.2	3,764.5	-2,359.7	14,297,138.14	1,708,986.16	39° 22' 15.890 N	80° 45' 26.538 W
11,309.0	89.69	339.31	6,772.2	3,851.7	-2,392.1	14,297,225.30	1,708,953.72	39° 22' 16.753 N	80° 45' 26.947 W
11,401.0	90.36	339.71	6,772.1	3,937.9	-2,424.3	14,297,311.48	1,708,921.52	39° 22' 17.606 N	80° 45' 27.354 W
11,494.0	91.34	338.96	6,770.8	4,024.9	-2,457.1	14,297,398.48	1,708,888.70	39° 22' 18.467 N	80° 45' 27.769 W
11,586.0	90.67	337.66	6,769.1	4,110.4	-2,491.1	14,297,483.95	1,708,854.71	39° 22' 19.313 N	80° 45' 28.199 W
11,679.0	90.57	338.04	6,768.1	4,196.5	-2,526.2	14,297,570.09	1,708,819.65	39° 22' 20.165 N	80° 45' 28.643 W
11,771.0	90.23	335.71	6,767.5	4,281.1	-2,562.3	14,297,654.69	1,708,783.52	39° 22' 21.003 N	80° 45' 29.100 W
11,864.0	89.60	334.99	6,767.6	4,365.6	-2,601.1	14,297,739.21	1,708,744.73	39° 22' 21.840 N	80° 45' 29.591 W
11,956.0	91.04	337.43	6,767.1	4,449.8	-2,636.2	14,297,823.38	1,708,707.62	39° 22' 22.673 N	80° 45' 30.061 W
12,049.0	89.76	336.83	6,766.5	4,535.5	-2,674.4	14,297,909.07	1,708,671.48	39° 22' 23.521 N	80° 45' 30.519 W
12,141.0	89.33	338.00	6,767.2	4,620.4	-2,709.7	14,297,994.01	1,708,636.15	39° 22' 24.362 N	80° 45' 30.966 W
12,234.0	90.74	339.43	6,767.1	4,707.1	-2,743.5	14,298,080.66	1,708,602.39	39° 22' 25.219 N	80° 45' 31.393 W
12,327.0	89.90	338.08	6,766.6	4,793.7	-2,777.2	14,298,167.33	1,708,568.68	39° 22' 26.077 N	80° 45' 31.819 W
12,419.0	90.47	337.60	6,766.3	4,878.9	-2,811.9	14,298,252.53	1,708,533.96	39° 22' 26.920 N	80° 45' 32.259 W
12,511.0	90.37	336.18	6,765.6	4,963.5	-2,846.0	14,298,337.13	1,708,497.84	39° 22' 27.758 N	80° 45' 32.716 W
12,604.0	89.66	336.18	6,765.6	5,048.6	-2,885.6	14,298,422.20	1,708,460.27	39° 22' 28.600 N	80° 45' 33.192 W
12,696.0	90.97	335.85	6,765.1	5,132.7	-2,923.0	14,298,506.26	1,708,422.87	39° 22' 29.432 N	80° 45' 33.665 W
12,789.0	90.73	337.25	6,763.7	5,218.0	-2,960.0	14,298,591.56	1,708,385.87	39° 22' 30.277 N	80° 45' 34.134 W
12,882.0	90.93	337.52	6,762.4	5,303.8	-2,995.7	14,298,677.40	1,708,350.11	39° 22' 31.126 N	80° 45' 34.566 W
12,974.0	91.10	338.17	6,760.8	5,389.0	-3,030.4	14,298,762.60	1,708,315.42	39° 22' 31.970 N	80° 45' 35.025 W
13,067.0	89.36	337.05	6,760.4	5,475.0	-3,065.9	14,298,848.58	1,708,280.00	39° 22' 32.821 N	80° 45' 35.474 W
13,159.0	88.92	337.74	6,761.8	5,559.9	-3,101.2	14,298,933.50	1,708,244.64	39° 22' 33.661 N	80° 45' 35.921 W
13,252.0	90.30	340.02	6,762.4	5,646.6	-3,134.7	14,299,020.25	1,708,211.13	39° 22' 34.520 N	80° 45' 36.345 W
13,344.0	91.51	342.18	6,760.9	5,733.7	-3,164.5	14,299,107.27	1,708,181.34	39° 22' 35.381 N	80° 45' 36.722 W
13,437.0	90.27	341.10	6,759.5	5,821.9	-3,193.8	14,299,195.52	1,708,152.05	39° 22' 36.254 N	80° 45' 37.092 W
13,529.0	90.13	339.48	6,759.2	5,908.5	-3,224.8	14,299,282.12	1,708,121.01	39° 22' 37.111 N	80° 45' 37.464 W
13,622.0	89.56	340.27	6,759.4	5,995.8	-3,256.9	14,299,369.44	1,708,088.99	39° 22' 37.978 N	80° 45' 37.889 W
13,714.0	90.23	340.00	6,759.6	6,082.4	-3,288.1	14,299,455.96	1,708,057.73	39° 22' 38.832 N	80° 45' 38.285 W
13,807.0	89.96	338.67	6,759.4	6,169.4	-3,320.9	14,299,542.98	1,708,024.91	39° 22' 39.693 N	80° 45' 38.700 W
13,899.0	89.53	338.42	6,759.9	6,255.0	-3,354.6	14,299,628.60	1,707,991.26	39° 22' 40.541 N	80° 45' 39.126 W
13,992.0	90.60	336.15	6,759.8	6,340.8	-3,390.5	14,299,714.38	1,707,955.35	39° 22' 41.390 N	80° 45' 39.580 W
14,084.0	90.57	335.71	6,758.8	6,424.8	-3,428.0	14,299,798.37	1,707,917.83	39° 22' 42.221 N	80° 45' 40.055 W
14,177.0	90.80	336.09	6,757.7	6,509.7	-3,466.0	14,299,883.26	1,707,879.86	39° 22' 43.061 N	80° 45' 40.536 W
14,269.0	89.53	335.73	6,757.4	6,593.6	-3,503.5	14,299,967.25	1,707,842.31	39° 22' 43.893 N	80° 45' 41.012 W
14,362.0	89.43	336.99	6,758.3	6,678.8	-3,540.8	14,300,052.44	1,707,805.02	39° 22' 44.736 N	80° 45' 41.484 W
14,454.0	89.73	337.07	6,759.0	6,763.5	-3,576.7	14,300,137.14	1,707,768.12	39° 22' 45.575 N	80° 45' 41.938 W
14,547.0	90.34	338.44	6,758.9	6,849.6	-3,611.9	14,300,223.22	1,707,733.91	39° 22' 46.427 N	80° 45' 42.384 W
14,640.0	89.97	339.70	6,758.6	6,936.5	-3,645.2	14,300,310.08	1,707,700.69	39° 22' 47.266 N	80° 45' 42.804 W
14,732.0	89.90	339.18	6,758.7	7,022.6	-3,677.5	14,300,396.22	1,707,668.38	39° 22' 48.139 N	80° 45' 43.213 W
14,825.0	90.47	340.03	6,758.4	7,109.8	-3,709.9	14,300,483.39	1,707,635.97	39° 22' 49.002 N	80° 45' 43.623 W
14,917.0	89.73	339.42	6,758.3	7,196.1	-3,741.8	14,300,569.68	1,707,604.09	39° 22' 49.856 N	80° 45' 44.026 W
15,009.0	91.34	340.74	6,757.4	7,282.6	-3,773.1	14,300,656.17	1,707,572.75	39° 22' 50.712 N	80° 45' 44.423 W
15,102.0	89.80	339.53	6,756.5	7,370.0	-3,804.7	14,300,743.63	1,707,541.15	39° 22' 51.577 N	80° 45' 44.822 W
15,194.0	90.37	340.02	6,756.4	7,456.4	-3,836.5	14,300,829.96	1,707,509.35	39° 22' 52.432 N	80° 45' 45.225 W
15,287.0	90.00	340.40	6,756.1	7,543.9	-3,868.0	14,300,917.46	1,707,477.86	39° 22' 53.298 N	80° 45' 45.623 W
15,380.0	90.64	340.13	6,755.5	7,631.4	-3,899.4	14,301,005.00	1,707,446.46	39° 22' 54.164 N	80° 45' 46.020 W
15,472.0	90.04	339.49	6,755.0	7,717.7	-3,931.1	14,301,091.34	1,707,414.71	39° 22' 55.018 N	80° 45' 46.422 W
15,564.0	90.04	338.39	6,754.9	7,803.6	-3,964.2	14,301,177.20	1,707,381.65	39° 22' 55.868 N	80° 45' 46.840 W
15,657.0	91.24	338.69	6,753.9	7,890.1	-3,998.2	14,301,263.74	1,707,347.62	39° 22' 56.725 N	80° 45' 47.271 W
15,749.0	91.21	338.51	6,751.9	7,975.8	-4,031.6	14,301,349.38	1,707,314.06	39° 22' 57.572 N	80° 45' 47.695 W
15,842.0	91.34	338.51	6,749.9	8,062.3	-4,065.6	14,301,435.89	1,707,280.00	39° 22' 58.429 N	80° 45' 48.126 W
15,934.0	89.97	339.18	6,748.8	8,148.1	-4,099.0	14,301,521.68	1,707,246.80	39° 22' 59.278 N	80° 45' 48.546 W



Company:	Antero Resources	Local Co-ordinate Reference:	Well Arthur Unit 1H
Project:	Doddridge County WV	TVD Reference:	PD 522: GL 1001' + KB 18' @ 1019.0usft
Site:	Misery Pad: Anne/Arthur/Deano/Hardin/Michelle/Rexa	MD Reference:	PD 522: GL 1001' + KB 18' @ 1019.0usft
Well:	Arthur Unit 1H	North Reference:	Grid
Wellbore:	ST2	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)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
16,027.0	90.00	339.85	6,748.8	8,235.2	-4,131.6	14,301,608.80	1,707,214.26	39° 23' 0.140 N	80° 45' 48.958 W
16,120.0	89.70	338.01	6,749.1	8,322.0	-4,165.0	14,301,695.58	1,707,180.82	39° 23' 0.999 N	80° 45' 49.381 W
16,212.0	89.67	336.52	6,749.6	8,406.8	-4,200.6	14,301,780.43	1,707,145.27	39° 23' 1.839 N	80° 45' 49.831 W
16,305.0	89.97	338.44	6,749.9	8,492.7	-4,236.2	14,301,866.33	1,707,109.65	39° 23' 2.669 N	80° 45' 50.282 W
16,397.0	90.34	338.95	6,749.6	8,578.4	-4,269.6	14,301,952.04	1,707,076.23	39° 23' 3.537 N	80° 45' 50.705 W
16,490.0	89.97	339.63	6,749.4	8,665.4	-4,302.5	14,302,039.03	1,707,043.34	39° 23' 4.398 N	80° 45' 51.121 W
16,582.0	89.63	340.93	6,749.7	8,752.0	-4,333.6	14,302,125.64	1,707,012.30	39° 23' 5.255 N	80° 45' 51.514 W
16,675.0	90.14	339.72	6,749.9	8,839.6	-4,364.9	14,302,213.20	1,706,960.99	39° 23' 6.122 N	80° 45' 51.910 W
16,767.0	90.64	337.05	6,749.3	8,925.1	-4,398.7	14,302,298.72	1,706,947.10	39° 23' 6.968 N	80° 45' 52.339 W
16,860.0	90.94	335.60	6,748.0	9,010.3	-4,436.1	14,302,383.89	1,706,909.76	39° 23' 7.811 N	80° 45' 52.812 W
16,924.0	91.24	336.29	6,746.8	9,088.7	-4,462.2	14,302,442.32	1,706,883.68	39° 23' 8.390 N	80° 45' 53.142 W
Last SDI MWD ST 2 @ 16924									
16,985.0	91.24	336.29	6,745.4	9,124.6	-4,486.7	14,302,498.16	1,706,859.16	39° 23' 8.943 N	80° 45' 53.453 W
Projection To Bit @ 16985 MD / 6745 TVD									

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,526.0	6,356.7	SCMR @ 6526		0.00	
6,771.0	6,534.5	MDLX @ 6771		0.00	
7,014.0	6,666.5	BRKT @ 7014		0.00	
7,076.0	6,694.8	TLLY @ 7076		0.00	
7,189.0	6,740.1	HMLN @ 7189		0.00	
7,210.0	6,746.8	MRCL_HOT @ 7210		0.00	

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	Comment
		+N/-S (usft) +E/-W (usft)	
16,924.0	6,746.8	9,088.7 -4,462.2	Last SDI MWD ST 2 @ 16924
16,985.0	6,745.4	9,124.6 -4,486.7	Projection To Bit @ 16985 MD / 6745 TVD

Checked By: _____ Approved By: _____ Date: _____

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Office of Oil and Gas
JUL 17 2017
WV Department of
Environmental Protection