



REFERENCE INFORMATION	
Co-ordinate (N/E) Reference:	Well McPherson A10 (111362) - Slot A10, Grid North
Vertical (TVD) Reference:	KB @ 5472.00ft (Original Well Elev)
Section (VS) Reference:	Slot - A10(0.00N, 0.00E)
Measured Depth Reference:	KB @ 5472.00ft (Original Well Elev)
Calculation Method:	Minimum Curvature

PROJECT DETAILS: McPherson	
Geodetic System:	Universal Transverse Mercator
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	Zone 13N (108 W to 102 W)
System Datum:	Mean Sea Level

SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1120.00	0.00	0.00	1120.00	0.00	0.00	0.00	0.00	0.00	0.00	
1854.48	22.03	160.08	1836.51	-131.16	47.52	3.00	160.08	139.50		
4264.49	22.03	160.08	4070.49	-981.23	355.52	0.00	0.00	1043.65		
4998.97	0.00	0.00	4787.00	-1112.38	403.04	3.00	180.00	1183.15		
7773.97	0.00	0.00	7562.00	-1112.38	403.04	0.00	0.00	1183.15	A10 BH	

Antero Resources

McPherson

McPherson A Pad

McPherson A10 (111362) - Slot A10

A10

Plan: McPherson A10 P03

Standard Planning Report - Geographic

03 August, 2011

ARK Directional Services

Planning Report - Geographic

Database:	EDM 5000 SERVER DB	Local Co-ordinate Reference:	Well McPherson A10 (111362) - Slot A10
Company:	Antero Resources	TVD Reference:	KB @ 5472.00ft (Original Well Elev)
Project:	McPherson	MD Reference:	KB @ 5472.00ft (Original Well Elev)
Site:	McPherson A Pad	North Reference:	Grid
Well:	McPherson A10 (111362)	Survey Calculation Method:	Minimum Curvature
Wellbore:	A10		
Design:	McPherson A10 P03		

Project	McPherson		
Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	McPherson A Pad				
Site Position:		Northing:	14,367,218.62 usft	Latitude:	39.531108419°N
From:	Map	Easting:	885,836.08 usft	Longitude:	107.676038841°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	-1.70 °

Well	McPherson A10 (111362) - Slot A10					
Well Position	+N/-S	0.00 ft	Northing:	14,367,218.38 usft	Latitude:	39.531109379°N
	+E/-W	0.00 ft	Easting:	885,856.08 usft	Longitude:	107.675967963°W
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,448.00 ft

Wellbore	A10				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	03/11/2011	10.16	65.82	52,276

Design	McPherson A10 P03				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	160.08	

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,120.00	0.00	0.00	1,120.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,854.48	22.03	160.08	1,836.51	-131.16	47.52	3.00	3.00	0.00	160.08	
4,264.49	22.03	160.08	4,070.49	-981.23	355.52	0.00	0.00	0.00	0.00	
4,998.97	0.00	0.00	4,787.00	-1,112.38	403.04	3.00	-3.00	0.00	180.00	
7,773.97	0.00	0.00	7,562.00	-1,112.38	403.04	0.00	0.00	0.00	0.00	A10 BH

ARK Directional Services

Planning Report - Geographic

Database:	EDM 5000 SERVER DB	Local Co-ordinate Reference:	Well McPherson A10 (111362) - Slot A10
Company:	Antero Resources	TVD Reference:	KB @ 5472.00ft (Original Well Elev)
Project:	McPherson	MD Reference:	KB @ 5472.00ft (Original Well Elev)
Site:	McPherson A Pad	North Reference:	Grid
Well:	McPherson A10 (111362)	Survey Calculation Method:	Minimum Curvature
Wellbore:	A10		
Design:	McPherson A10 P03		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
100.00	0.00	0.00	100.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
200.00	0.00	0.00	200.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
300.00	0.00	0.00	300.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
400.00	0.00	0.00	400.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
500.00	0.00	0.00	500.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
600.00	0.00	0.00	600.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
700.00	0.00	0.00	700.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
800.00	0.00	0.00	800.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
900.00	0.00	0.00	900.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
1,030.00	0.00	0.00	1,030.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
Surf Csg at 1030 MD/TVD										
1,100.00	0.00	0.00	1,100.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
1,120.00	0.00	0.00	1,120.00	0.00	0.00	14,367,218.38	885,856.08	39.531109379°N	107.675967963°W	
KOP 3°/100 at 1120 MD/TVD										
1,200.00	2.40	160.08	1,199.98	-1.58	0.57	14,367,216.80	885,856.65	39.531105104°N	107.675965776°W	
1,300.00	5.40	160.08	1,299.73	-7.97	2.89	14,367,210.41	885,858.97	39.531087752°N	107.675956894°W	
1,400.00	8.40	160.08	1,399.00	-19.26	6.98	14,367,199.12	885,863.06	39.531057102°N	107.675941207°W	
1,500.00	11.40	160.08	1,497.50	-35.43	12.84	14,367,182.95	885,868.92	39.531013239°N	107.675918757°W	
1,600.00	14.40	160.08	1,594.96	-56.41	20.44	14,367,161.97	885,876.52	39.530956283°N	107.675889605°W	
1,700.00	17.40	160.08	1,691.13	-82.17	29.77	14,367,136.21	885,885.85	39.530886390°N	107.675853832°W	
1,800.00	20.40	160.08	1,785.72	-112.62	40.80	14,367,105.76	885,896.89	39.530803751°N	107.675811536°W	
1,854.48	22.03	160.08	1,836.51	-131.16	47.52	14,367,087.22	885,903.60	39.530753445°N	107.675785789°W	
Hold 22° inc at 1854 MD/1837 TVD										
1,900.00	22.03	160.08	1,878.70	-147.21	53.34	14,367,071.17	885,909.42	39.530709872°N	107.675763487°W	
2,000.00	22.03	160.08	1,971.40	-182.48	66.12	14,367,035.90	885,922.20	39.530614148°N	107.675714494°W	
2,100.00	22.03	160.08	2,064.10	-217.76	78.90	14,367,000.62	885,934.98	39.530518424°N	107.675665501°W	
2,200.00	22.03	160.08	2,156.79	-253.03	91.68	14,366,965.35	885,947.76	39.530422700°N	107.675616508°W	
2,300.00	22.03	160.08	2,249.49	-288.30	104.46	14,366,930.08	885,960.54	39.530326975°N	107.675567515°W	
2,400.00	22.03	160.08	2,342.18	-323.57	117.24	14,366,894.81	885,973.32	39.530231251°N	107.675518523°W	
2,500.00	22.03	160.08	2,434.88	-358.85	130.02	14,366,859.53	885,986.10	39.530135527°N	107.675469530°W	
2,600.00	22.03	160.08	2,527.58	-394.12	142.80	14,366,824.26	885,998.88	39.530039803°N	107.675420538°W	
2,700.00	22.03	160.08	2,620.27	-429.39	155.58	14,366,788.99	886,011.66	39.529944079°N	107.675371546°W	
2,800.00	22.03	160.08	2,712.97	-464.66	168.36	14,366,753.72	886,024.44	39.529848355°N	107.675322554°W	
2,900.00	22.03	160.08	2,805.66	-499.94	181.14	14,366,718.44	886,037.22	39.529752630°N	107.675273562°W	
3,000.00	22.03	160.08	2,898.36	-535.21	193.92	14,366,683.17	886,050.00	39.529656906°N	107.675224570°W	
3,100.00	22.03	160.08	2,991.05	-570.48	206.70	14,366,647.90	886,062.78	39.529561182°N	107.675175579°W	
3,200.00	22.03	160.08	3,083.75	-605.75	219.48	14,366,612.63	886,075.56	39.529465458°N	107.675126587°W	
3,300.00	22.03	160.08	3,176.45	-641.03	232.26	14,366,577.35	886,088.34	39.529369733°N	107.675077596°W	
3,400.00	22.03	160.08	3,269.14	-676.30	245.04	14,366,542.08	886,101.12	39.529274009°N	107.675028605°W	
3,500.00	22.03	160.08	3,361.84	-711.57	257.82	14,366,506.81	886,113.90	39.529178284°N	107.674979614°W	
3,600.00	22.03	160.08	3,454.53	-746.84	270.60	14,366,471.54	886,126.68	39.529082560°N	107.674930623°W	
3,700.00	22.03	160.08	3,547.23	-782.12	283.38	14,366,436.26	886,139.46	39.528986836°N	107.674881632°W	
3,800.00	22.03	160.08	3,639.93	-817.39	296.16	14,366,400.99	886,152.24	39.528891111°N	107.674832641°W	
3,900.00	22.03	160.08	3,732.62	-852.66	308.94	14,366,365.72	886,165.02	39.528795387°N	107.674783651°W	
4,000.00	22.03	160.08	3,825.32	-887.93	321.72	14,366,330.45	886,177.80	39.528699662°N	107.674734660°W	
4,100.00	22.03	160.08	3,918.01	-923.21	334.50	14,366,295.17	886,190.58	39.528603938°N	107.674685670°W	
4,200.00	22.03	160.08	4,010.71	-958.48	347.28	14,366,259.90	886,203.36	39.528508213°N	107.674636680°W	
4,217.57	22.03	160.08	4,027.00	-964.68	349.52	14,366,253.70	886,205.60	39.528491390°N	107.674628070°W	
Mesaverde										
4,264.49	22.03	160.08	4,070.49	-981.23	355.52	14,366,237.16	886,211.60	39.528446480°N	107.674605087°W	
Drop 3°/100 at 4264 MD/4070 TVD										
4,300.00	20.97	160.08	4,103.53	-993.46	359.95	14,366,224.92	886,216.03	39.528413271°N	107.674588091°W	

ARK Directional Services

Planning Report - Geographic

Database:	EDM 5000 SERVER DB	Local Co-ordinate Reference:	Well McPherson A10 (111362) - Slot A10
Company:	Antero Resources	TVD Reference:	KB @ 5472.00ft (Original Well Elev)
Project:	McPherson	MD Reference:	KB @ 5472.00ft (Original Well Elev)
Site:	McPherson A Pad	North Reference:	Grid
Well:	McPherson A10 (111362)	Survey Calculation Method:	Minimum Curvature
Wellbore:	A10		
Design:	McPherson A10 P03		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
4,400.00	17.97	160.08	4,197.80	-1,024.80	371.31	14,366,193.59	886,227.39	39.528328238°N	107.674544573°W	
4,500.00	14.97	160.08	4,293.68	-1,051.45	380.96	14,366,166.93	886,237.04	39.528255910°N	107.674507557°W	
4,600.00	11.97	160.08	4,390.92	-1,073.34	388.90	14,366,145.04	886,244.98	39.528196485°N	107.674477145°W	
4,700.00	8.97	160.08	4,489.25	-1,090.43	395.08	14,366,127.96	886,251.17	39.528150127°N	107.674453420°W	
4,800.00	5.97	160.08	4,588.39	-1,102.65	399.51	14,366,115.74	886,255.59	39.528116963°N	107.674436447°W	
4,900.00	2.97	160.08	4,688.07	-1,109.97	402.17	14,366,108.41	886,258.25	39.528097083°N	107.674426273°W	
4,998.97	0.00	0.00	4,787.00	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
Vertical at 4999 MD/4787 TVD - Price Coal										
5,000.00	0.00	0.00	4,788.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
5,100.00	0.00	0.00	4,888.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
5,200.00	0.00	0.00	4,988.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
5,300.00	0.00	0.00	5,088.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
5,400.00	0.00	0.00	5,188.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
5,500.00	0.00	0.00	5,288.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
5,600.00	0.00	0.00	5,388.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
5,700.00	0.00	0.00	5,488.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
5,800.00	0.00	0.00	5,588.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
5,898.97	0.00	0.00	5,687.00	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
Top Gas										
5,900.00	0.00	0.00	5,688.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
6,000.00	0.00	0.00	5,788.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
6,100.00	0.00	0.00	5,888.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
6,200.00	0.00	0.00	5,988.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
6,300.00	0.00	0.00	6,088.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
6,400.00	0.00	0.00	6,188.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
6,500.00	0.00	0.00	6,288.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
6,600.00	0.00	0.00	6,388.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
6,700.00	0.00	0.00	6,488.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
6,723.97	0.00	0.00	6,512.00	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
Cameo										
6,800.00	0.00	0.00	6,588.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
6,900.00	0.00	0.00	6,688.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
7,000.00	0.00	0.00	6,788.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
7,100.00	0.00	0.00	6,888.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
7,200.00	0.00	0.00	6,988.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
7,300.00	0.00	0.00	7,088.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
7,400.00	0.00	0.00	7,188.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
7,500.00	0.00	0.00	7,288.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
7,600.00	0.00	0.00	7,388.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
7,623.97	0.00	0.00	7,412.00	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
Rollins										
7,700.00	0.00	0.00	7,488.03	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
7,773.97	0.00	0.00	7,562.00	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W	
TD at 7774 MD/7562 TVD - A10 BH										

ARK Directional Services

Planning Report - Geographic

Database:	EDM 5000 SERVER DB	Local Co-ordinate Reference:	Well McPherson A10 (111362) - Slot A10
Company:	Antero Resources	TVD Reference:	KB @ 5472.00ft (Original Well Elev)
Project:	McPherson	MD Reference:	KB @ 5472.00ft (Original Well Elev)
Site:	McPherson A Pad	North Reference:	Grid
Well:	McPherson A10 (111362)	Survey Calculation Method:	Minimum Curvature
Wellbore:	A10		
Design:	McPherson A10 P03		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
A10 BH - plan hits target center - Circle (radius 25.00)	0.00	360.00	7,562.00	-1,112.38	403.04	14,366,106.00	886,259.12	39.528090541°N	107.674422925°W

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(ft)	(ft)		(in)	(in)	
1,030.00	1,030.00	Surf Csg at 1030 MD/TVD	5.50	6.00	

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
4,217.57	4,027.00	Mesaverde			
4,998.97	4,787.00	Price Coal			
5,898.97	5,687.00	Top Gas			
6,723.97	6,512.00	Cameo			
7,623.97	7,412.00	Rollins			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)		
1,120.00	1,120.00	0.00	0.00	KOP 3°/100 at 1120 MD/TVD	
1,854.48	1,836.51	-131.16	47.52	Hold 22° inc at 1854 MD/1837 TVD	
4,264.49	4,070.49	-981.23	355.52	Drop 3°/100 at 4264 MD/4070 TVD	
4,998.97	4,787.00	-1,112.38	403.04	Vertical at 4999 MD/4787 TVD	
7,773.97	7,562.00	-1,112.38	403.04	TD at 7774 MD/7562 TVD	