

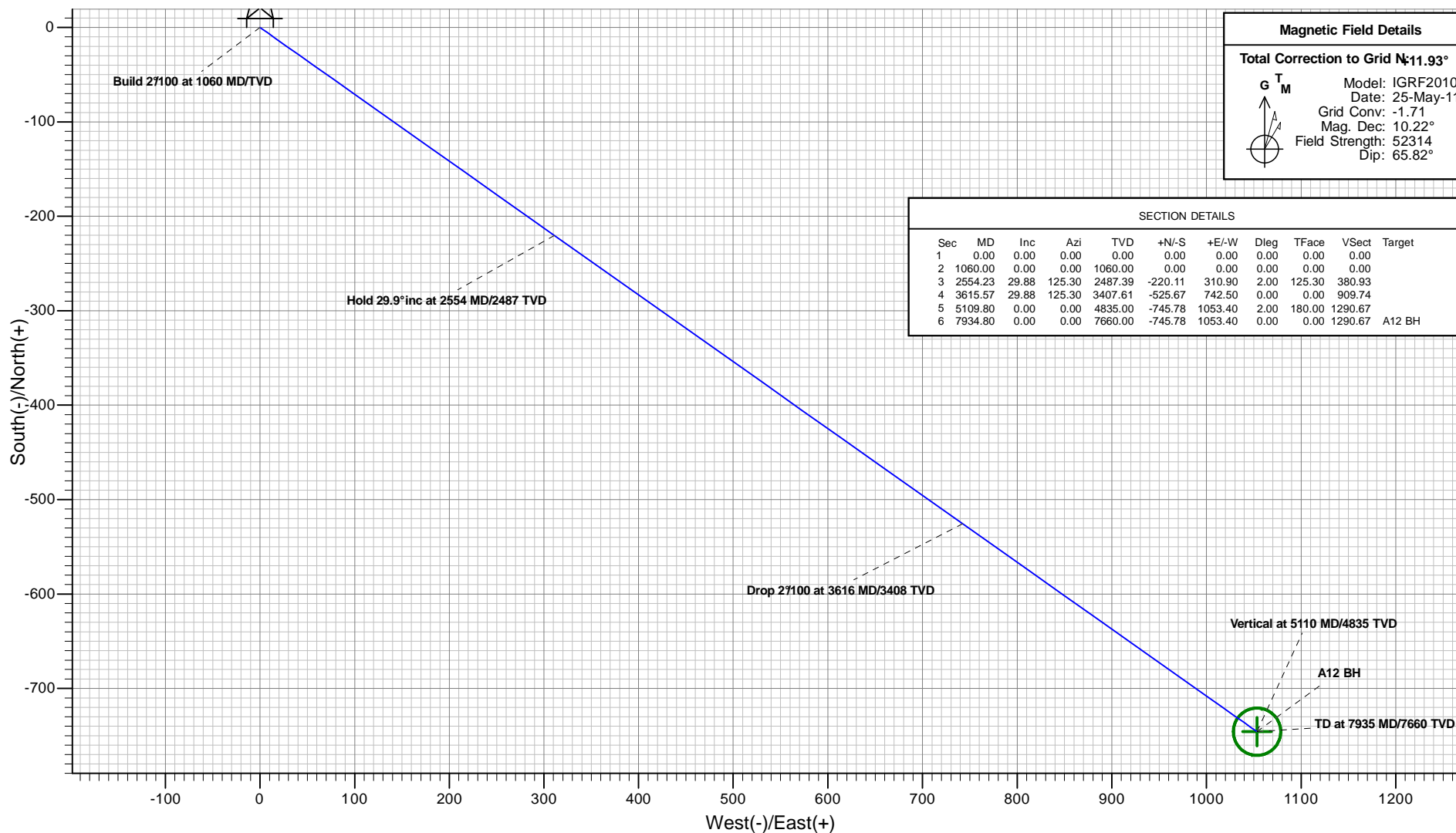


PLAN VIEW

Antero Resources

Left Hand Federal A12 (111349)

Project: Left Hand
Site: Left Hand Federal A
Well: Left Hand Federal A12 (111349)
Wellbore: Left Hand Federal A12
Design: Left Hand Federal A12 P01



Plan: Left Hand Federal A12 P01
Created By: ARK Directional Services
Date: 14:43, February 28 2011

PROJECT DETAILS: Left Hand

Geodetic System: Universal Transverse Mercator (US Survey Feet)
Datum: NAD83 Colorado - HARN
Ellipsoid: GRS 1980
Zone: Zone 13N (108 W to 102 W)
System Datum: Mean Sea Level

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well Left Hand Federal A12 (111349) - Slot A12, Grid North
Vertical (TVD) Reference: KB @ 5708.00ft (Original Well Elev)
Section (VS) Reference: Slot - A12(0.00N, 0.00E)
Measured Depth Reference: KB @ 5708.00ft (Original Well Elev)
Calculation Method: Minimum Curvature

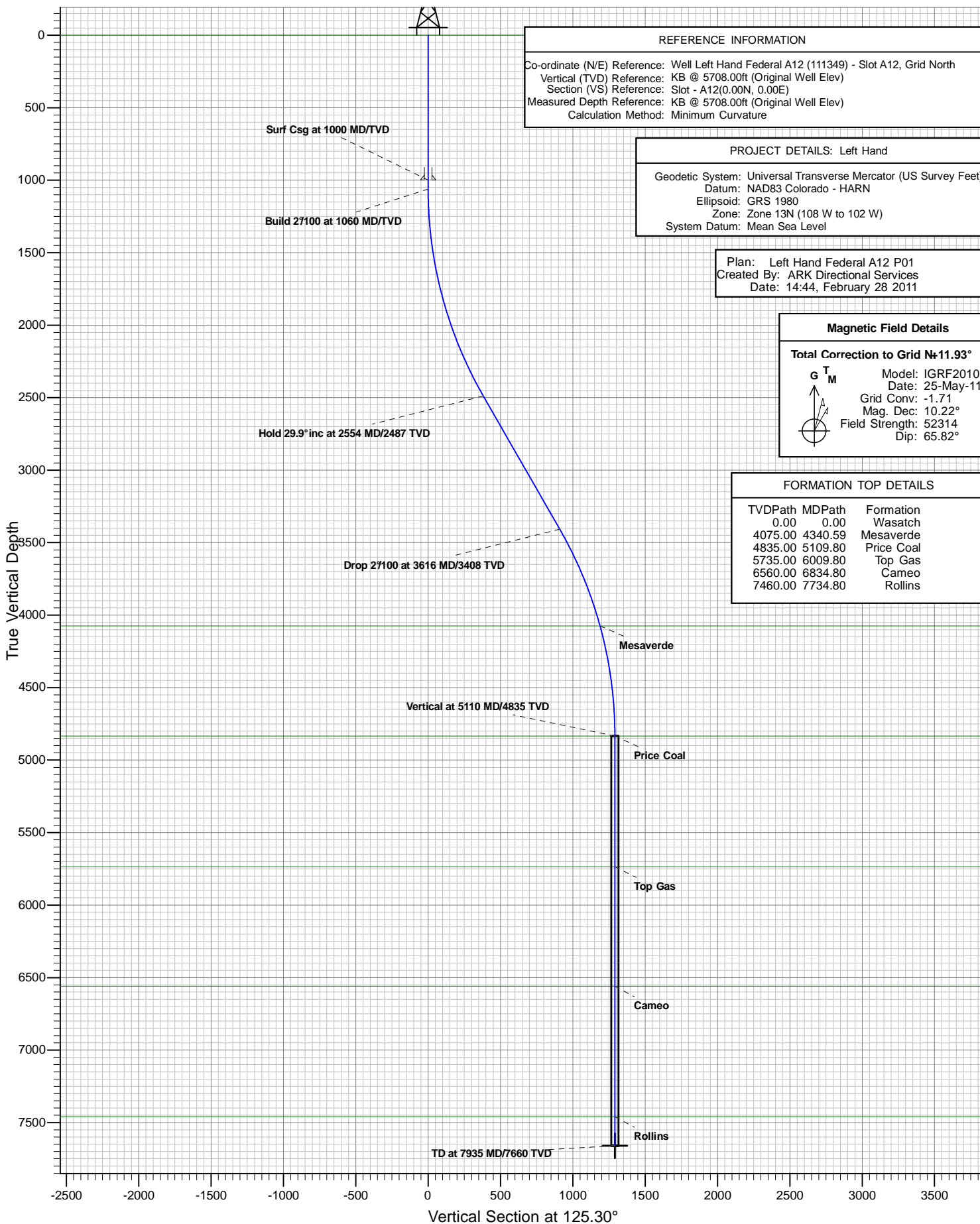


Antero Resources



VERTICAL SECTION VIEW

Left Hand Federal A12 (111349)



Antero Resources

Left Hand

Left Hand Federal A

Left Hand Federal A12 (111349) - Slot A12

Left Hand Federal A12

Plan: Left Hand Federal A12 P01

Standard Planning Report - Geographic

28 February, 2011

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Left Hand Federal A12 (111349) - Slot A12
Company:	Antero Resources	TVD Reference:	KB @ 5708.00ft (Original Well Elev)
Project:	Left Hand	MD Reference:	KB @ 5708.00ft (Original Well Elev)
Site:	Left Hand Federal A	North Reference:	Grid
Well:	Left Hand Federal A12 (111349)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Left Hand Federal A12		
Design:	Left Hand Federal A12 P01		

Project	Left Hand		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD83 Colorado - HARN		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	Left Hand Federal A		
Site Position:		Northing:	14,363,958.160 usft
From:	Map	Easting:	885,193.914 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in
		Latitude:	39.522111194°N
		Longitude:	107.677970034°W
		Grid Convergence:	-1.71 °

Well	Left Hand Federal A12 (111349) - Slot A12		
Well Position	+N/-S	0.00 ft	Northing:
	+E/-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Left Hand Federal A12				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/05/25	10.22	65.82	52,314

Design	Left Hand Federal A12 P01			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	125.30

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	
1,060.00	0.00	0.00	1,060.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,554.23	29.88	125.30	2,487.39	-220.11	310.90	2.00	2.00	0.00	125.30	
3,615.57	29.88	125.30	3,407.61	-525.67	742.50	0.00	0.00	0.00	0.00	
5,109.80	0.00	0.00	4,835.00	-745.78	1,053.40	2.00	-2.00	0.00	180.00	
7,934.80	0.00	0.00	7,660.00	-745.78	1,053.40	0.00	0.00	0.00	0.00	A12 BH

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Left Hand Federal A12 (111349) - Slot A12
Company:	Antero Resources	TVD Reference:	KB @ 5708.00ft (Original Well Elev)
Project:	Left Hand	MD Reference:	KB @ 5708.00ft (Original Well Elev)
Site:	Left Hand Federal A	North Reference:	Grid
Well:	Left Hand Federal A12 (111349)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Left Hand Federal A12		
Design:	Left Hand Federal A12 P01		

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	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
Wasatch										
100.00	0.00	0.00	100.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
200.00	0.00	0.00	200.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
300.00	0.00	0.00	300.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
400.00	0.00	0.00	400.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
500.00	0.00	0.00	500.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
600.00	0.00	0.00	600.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
700.00	0.00	0.00	700.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
800.00	0.00	0.00	800.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
900.00	0.00	0.00	900.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
Surf Csg at 1000 MD/TVD										
1,060.00	0.00	0.00	1,060.00	0.00	0.00	14,363,910.852	885,202.038	39.521982072°N	107.677936268°W	
Build 2°/100 at 1060 MD/TVD										
1,100.00	0.80	125.30	1,100.00	-0.16	0.23	14,363,910.690	885,202.266	39.521981648°N	107.677935444°W	
1,200.00	2.80	125.30	1,199.94	-1.98	2.79	14,363,908.876	885,204.829	39.521976878°N	107.677926172°W	
1,300.00	4.80	125.30	1,299.72	-5.81	8.20	14,363,905.046	885,210.238	39.521966815°N	107.677906609°W	
1,400.00	6.80	125.30	1,399.20	-11.64	16.45	14,363,899.207	885,218.485	39.521951470°N	107.677876779°W	
1,500.00	8.80	125.30	1,498.27	-19.49	27.52	14,363,891.366	885,229.561	39.521930861°N	107.677836717°W	
1,600.00	10.80	125.30	1,596.81	-29.32	41.41	14,363,881.531	885,243.453	39.521905015°N	107.677786474°W	
1,700.00	12.80	125.30	1,694.69	-41.14	58.10	14,363,869.716	885,260.142	39.521873963°N	107.677726110°W	
1,800.00	14.80	125.30	1,791.80	-54.92	77.57	14,363,855.933	885,279.609	39.521837742°N	107.677655699°W	
1,900.00	16.80	125.30	1,888.02	-70.65	99.79	14,363,840.201	885,301.830	39.521796396°N	107.677575326°W	
2,000.00	18.80	125.30	1,983.22	-88.31	124.74	14,363,822.538	885,326.779	39.521749977°N	107.677485090°W	
2,100.00	20.80	125.30	2,077.31	-107.89	152.39	14,363,802.966	885,354.424	39.521698540°N	107.677385100°W	
2,200.00	22.80	125.30	2,170.15	-129.34	182.69	14,363,781.509	885,384.732	39.521642147°N	107.677275479°W	
2,300.00	24.80	125.30	2,261.64	-152.66	215.63	14,363,758.192	885,417.666	39.521580869°N	107.677156359°W	
2,400.00	26.80	125.30	2,351.67	-177.81	251.15	14,363,733.045	885,453.186	39.521514779°N	107.677027887°W	
2,500.00	28.80	125.30	2,440.12	-204.75	289.21	14,363,706.097	885,491.249	39.521443958°N	107.676890218°W	
2,554.23	29.88	125.30	2,487.39	-220.11	310.90	14,363,690.744	885,512.936	39.521403606°N	107.676811779°W	
Hold 29.9° inc at 2554 MD/2487 TVD										
2,600.00	29.88	125.30	2,527.08	-233.29	329.51	14,363,677.565	885,531.550	39.521368972°N	107.676744454°W	
2,700.00	29.88	125.30	2,613.78	-262.08	370.18	14,363,648.775	885,572.215	39.521293307°N	107.676597372°W	
2,800.00	29.88	125.30	2,700.48	-290.87	410.84	14,363,619.985	885,612.881	39.521217642°N	107.676450291°W	
2,900.00	29.88	125.30	2,787.19	-319.66	451.51	14,363,591.195	885,653.546	39.521141978°N	107.676303209°W	
3,000.00	29.88	125.30	2,873.89	-348.45	492.17	14,363,562.404	885,694.212	39.521066313°N	107.676156128°W	
3,100.00	29.88	125.30	2,960.59	-377.24	532.84	14,363,533.614	885,734.877	39.520990647°N	107.676009048°W	
3,200.00	29.88	125.30	3,047.30	-406.03	573.51	14,363,504.824	885,775.543	39.520914982°N	107.675861967°W	
3,300.00	29.88	125.30	3,134.00	-434.82	614.17	14,363,476.034	885,816.208	39.520839316°N	107.675714887°W	
3,400.00	29.88	125.30	3,220.70	-463.61	654.84	14,363,447.244	885,856.874	39.520763650°N	107.675567808°W	
3,500.00	29.88	125.30	3,307.41	-492.40	695.50	14,363,418.453	885,897.539	39.520687984°N	107.675420728°W	
3,600.00	29.88	125.30	3,394.11	-521.19	736.17	14,363,389.663	885,938.204	39.520612318°N	107.675273649°W	
3,615.57	29.88	125.30	3,407.61	-525.67	742.50	14,363,385.181	885,944.535	39.520600538°N	107.675250751°W	
Drop 2°/100 at 3616 MD/3408 TVD										
3,700.00	28.20	125.30	3,481.42	-549.35	775.95	14,363,361.500	885,977.985	39.520538299°N	107.675129772°W	
3,800.00	26.20	125.30	3,570.36	-575.76	813.25	14,363,335.093	886,015.284	39.520468895°N	107.674994868°W	
3,900.00	24.20	125.30	3,660.84	-600.36	847.99	14,363,310.495	886,050.027	39.520404248°N	107.674869209°W	
4,000.00	22.20	125.30	3,752.76	-623.12	880.14	14,363,287.737	886,082.172	39.520344435°N	107.674752948°W	
4,100.00	20.20	125.30	3,845.99	-644.01	909.64	14,363,266.847	886,111.680	39.520289530°N	107.674646226°W	
4,200.00	18.20	125.30	3,940.42	-663.00	936.48	14,363,247.849	886,138.514	39.520239600°N	107.674549174°W	
4,300.00	16.20	125.30	4,035.95	-680.09	960.61	14,363,230.767	886,162.641	39.520194705°N	107.674461910°W	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Left Hand Federal A12 (111349) - Slot A12
Company:	Antero Resources	TVD Reference:	KB @ 5708.00ft (Original Well Elev)
Project:	Left Hand	MD Reference:	KB @ 5708.00ft (Original Well Elev)
Site:	Left Hand Federal A	North Reference:	Grid
Well:	Left Hand Federal A12 (111349)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Left Hand Federal A12		
Design:	Left Hand Federal A12 P01		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
4,340.59	15.38	125.30	4,075.00	-686.47	969.62	14,363,224.386	886,171.655	39.520177933°N	107.674429310°W
Mesaverde									
4,400.00	14.20	125.30	4,132.44	-695.23	982.00	14,363,215.622	886,184.034	39.520154900°N	107.674384540°W
4,500.00	12.20	125.30	4,229.80	-708.42	1,000.63	14,363,202.432	886,202.664	39.520120233°N	107.674317158°W
4,600.00	10.20	125.30	4,327.89	-719.64	1,016.47	14,363,191.213	886,218.510	39.520090748°N	107.674259847°W
4,700.00	8.20	125.30	4,426.60	-728.87	1,029.52	14,363,181.980	886,231.553	39.520066479°N	107.674212675°W
4,800.00	6.20	125.30	4,525.81	-736.11	1,039.74	14,363,174.742	886,241.775	39.520047457°N	107.674175702°W
4,900.00	4.20	125.30	4,625.39	-741.34	1,047.13	14,363,169.510	886,249.166	39.520033705°N	107.674148971°W
5,000.00	2.20	125.30	4,725.23	-744.56	1,051.68	14,363,166.288	886,253.716	39.520025239°N	107.674132515°W
5,100.00	0.20	125.30	4,825.20	-745.77	1,053.38	14,363,165.082	886,255.420	39.520022069°N	107.674126355°W
5,109.80	0.00	0.00	4,835.00	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
Vertical at 5110 MD/4835 TVD - Price Coal									
5,200.00	0.00	0.00	4,925.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
5,300.00	0.00	0.00	5,025.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
5,400.00	0.00	0.00	5,125.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
5,500.00	0.00	0.00	5,225.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
5,600.00	0.00	0.00	5,325.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
5,700.00	0.00	0.00	5,425.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
5,800.00	0.00	0.00	5,525.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
5,900.00	0.00	0.00	5,625.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
6,000.00	0.00	0.00	5,725.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
6,009.80	0.00	0.00	5,735.00	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
Top Gas									
6,100.00	0.00	0.00	5,825.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
6,200.00	0.00	0.00	5,925.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
6,300.00	0.00	0.00	6,025.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
6,400.00	0.00	0.00	6,125.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
6,500.00	0.00	0.00	6,225.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
6,600.00	0.00	0.00	6,325.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
6,700.00	0.00	0.00	6,425.20	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
6,800.00	0.00	0.00	6,525.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
6,834.80	0.00	0.00	6,560.00	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
Cameo									
6,900.00	0.00	0.00	6,625.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,000.00	0.00	0.00	6,725.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,100.00	0.00	0.00	6,825.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,200.00	0.00	0.00	6,925.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,300.00	0.00	0.00	7,025.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,400.00	0.00	0.00	7,125.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,500.00	0.00	0.00	7,225.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,600.00	0.00	0.00	7,325.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,700.00	0.00	0.00	7,425.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,734.80	0.00	0.00	7,460.00	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
Rollins									
7,800.00	0.00	0.00	7,525.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,900.00	0.00	0.00	7,625.21	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
7,934.80	0.00	0.00	7,660.00	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
TD at 7935 MD/7660 TVD - A12 BH									

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well Left Hand Federal A12 (111349) - Slot A12
Company:	Antero Resources	TVD Reference:	KB @ 5708.00ft (Original Well Elev)
Project:	Left Hand	MD Reference:	KB @ 5708.00ft (Original Well Elev)
Site:	Left Hand Federal A	North Reference:	Grid
Well:	Left Hand Federal A12 (111349)	Survey Calculation Method:	Minimum Curvature
Wellbore:	Left Hand Federal A12		
Design:	Left Hand Federal A12 P01		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
A12 BH	0.00	360.00	7,660.00	-745.78	1,053.40	14,363,165.073	886,255.433	39.520022044°N	107.674126305°W
- plan hits target center									
- Circle (radius 25.00)									

Casing Points					
Measured Depth	Vertical Depth			Casing Diameter	Hole Diameter
(ft)	(ft)	Name		(in)	(in)
1,000.00	1,000.00	Surf Csg at 1000 MD/TVD		5.50	6.00

Formations					
Measured Depth	Vertical Depth			Dip	Dip Direction
(ft)	(ft)	Name	Lithology	(°)	(°)
0.00	0.00	Wasatch			
4,340.59	4,075.00	Mesaverde			
5,109.80	4,835.00	Price Coal			
6,009.80	5,735.00	Top Gas			
6,834.80	6,560.00	Cameo			
7,734.80	7,460.00	Rollins			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	Comment	
1,060.00	1,060.00	0.00	0.00	Build 2°/100 at 1060 MD/TVD	
2,554.23	2,487.39	-220.11	310.90	Hold 29.9° inc at 2554 MD/2487 TVD	
3,615.57	3,407.61	-525.67	742.50	Drop 2°/100 at 3616 MD/3408 TVD	
5,109.80	4,835.00	-745.78	1,053.40	Vertical at 5110 MD/4835 TVD	
7,934.80	7,660.00	-745.78	1,053.40	TD at 7935 MD/7660 TVD	