



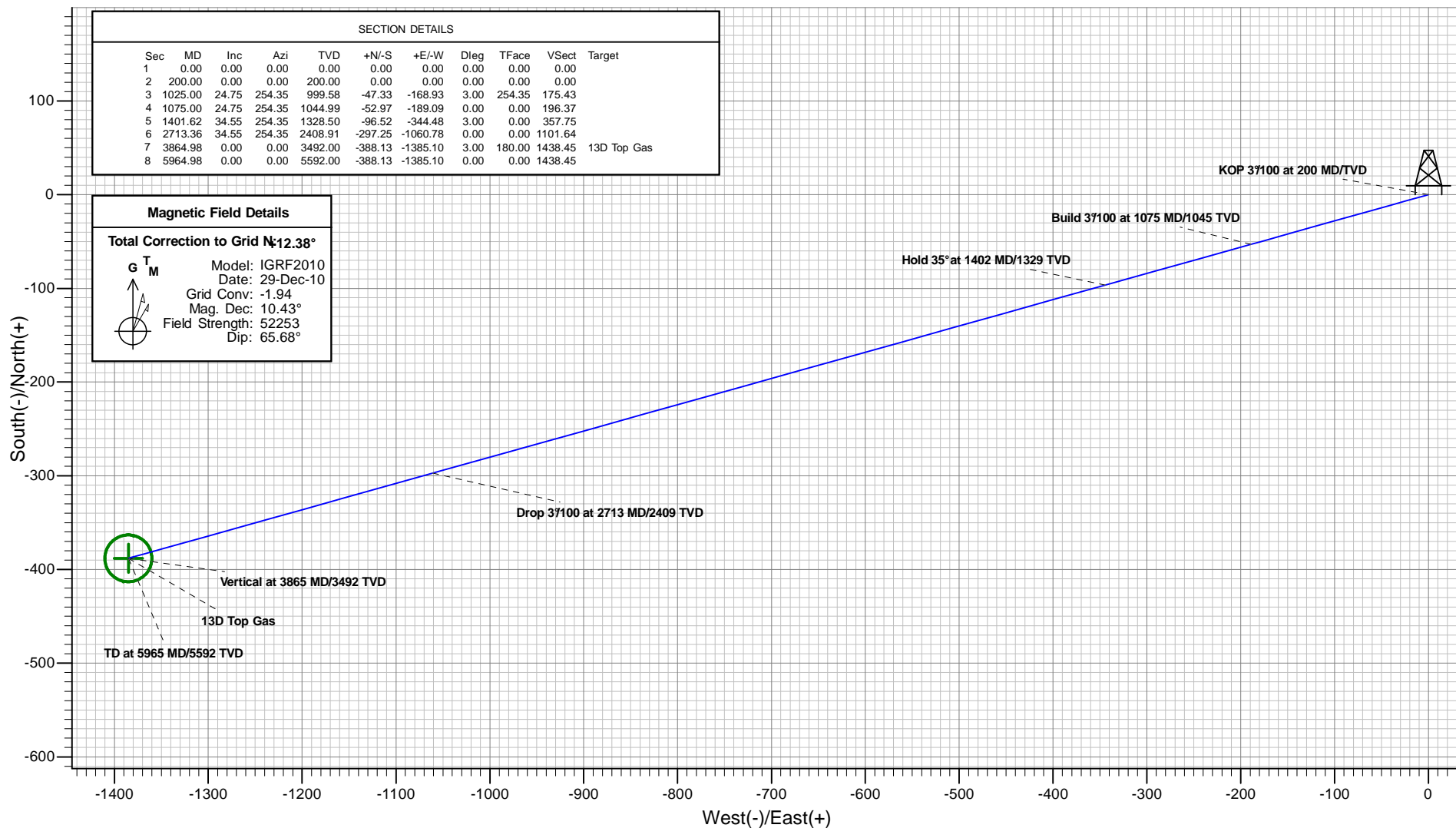
Antero Resources

BAT 13D-24-07-96 (111262)



PLAN VIEW

Project: Speakman
Site: Speakman A Pad
Well: BAT 13D-24-07-96 (111262)
Wellbore: BAT 13D
Design: BAT 13D P01



Plan: BAT 13D P01
Created By: ARK Directional Services
Date: 14:44, October 18 2010

PROJECT DETAILS: Speakman

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

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well BAT 13D-24-07-96 (111262) - Slot BAT 13D, Grid North
Vertical (TVD) Reference: KB @ 5202.00ft (Original Well Elev)
Section (VS) Reference: Slot - BAT 13D(0.00N, 0.00E)
Measured Depth Reference: KB @ 5202.00ft (Original Well Elev)
Calculation Method: Minimum Curvature

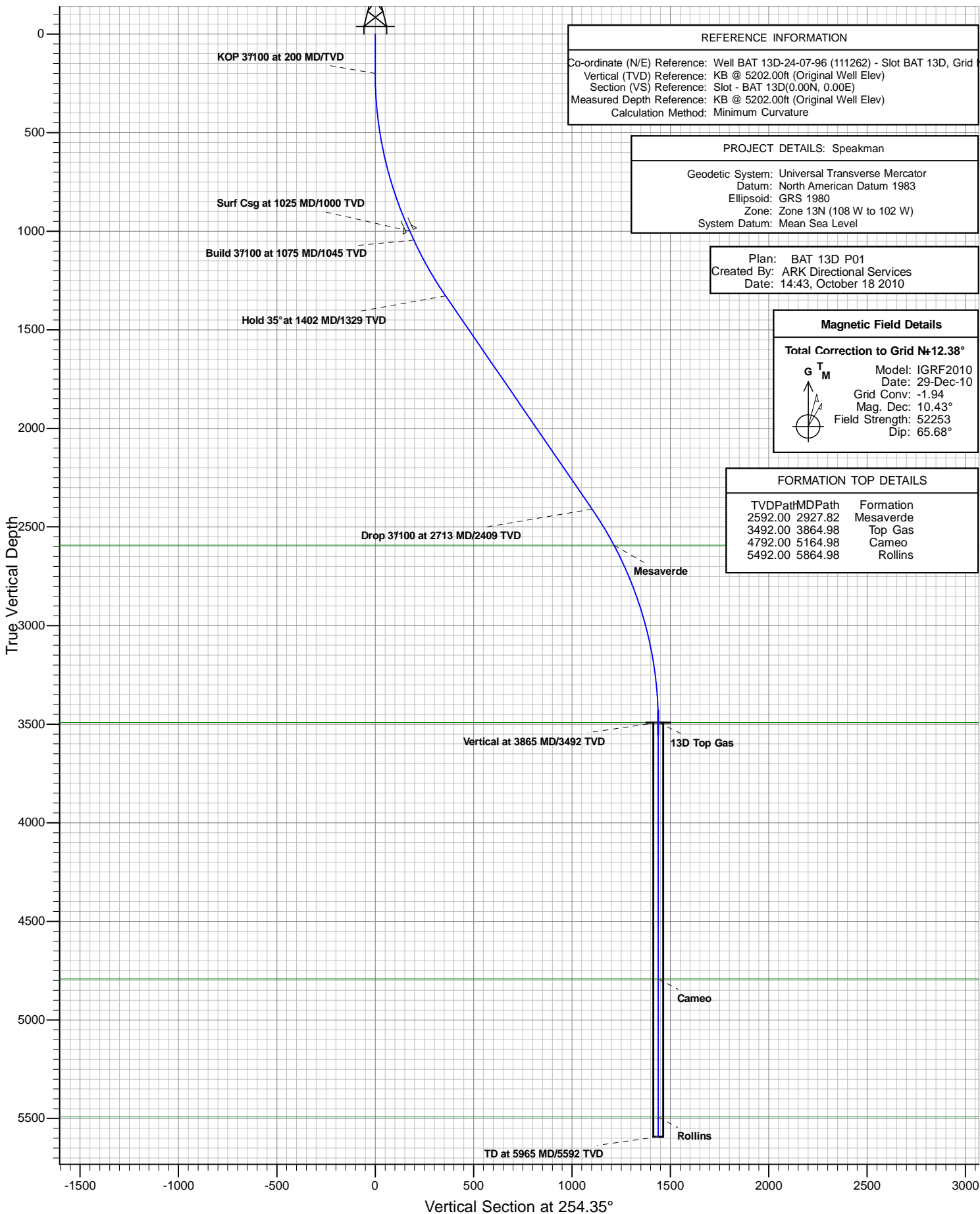


Antero Resources

BAT 13D-24-07-96 (111262)



VERTICAL SECTION VIEW



Antero Resources

Speakman

Speakman A Pad

BAT 13D-24-07-96 (111262) - Slot BAT 13D

BAT 13D

Plan: BAT 13D P01

Standard Planning Report - Geographic

18 October, 2010

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well BAT 13D-24-07-96 (111262) - Slot BAT 13D
Company:	Antero Resources	TVD Reference:	KB @ 5202.00ft (Original Well Elev)
Project:	Speakman	MD Reference:	KB @ 5202.00ft (Original Well Elev)
Site:	Speakman A Pad	North Reference:	Grid
Well:	BAT 13D-24-07-96 (111262)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 13D		
Design:	BAT 13D P01		

Project	Speakman		
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	Speakman A Pad		
Site Position:		Northing:	14,330,542.672 usft
From:	Map	Easting:	776,091.308 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in
		Latitude:	39.420918160°N
		Longitude:	108.060333667°W
		Grid Convergence:	-1.94 °

Well	BAT 13D-24-07-96 (111262) - Slot BAT 13D		
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	BAT 13D				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2010/12/29	10.43	65.68	52,253

Design	BAT 13D P01			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	3,492.00	0.00	0.00	254.35

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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,025.00	24.75	254.35	999.58	-47.33	-168.93	3.00	3.00	0.00	254.35	
1,075.00	24.75	254.35	1,044.99	-52.97	-189.09	0.00	0.00	0.00	0.00	
1,401.62	34.55	254.35	1,328.50	-96.52	-344.48	3.00	3.00	0.00	0.00	
2,713.36	34.55	254.35	2,408.91	-297.25	-1,060.78	0.00	0.00	0.00	0.00	
3,864.98	0.00	0.00	3,492.00	-388.13	-1,385.10	3.00	-3.00	0.00	180.00	13D Top Gas
5,964.98	0.00	0.00	5,592.00	-388.13	-1,385.10	0.00	0.00	0.00	0.00	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well BAT 13D-24-07-96 (111262) - Slot BAT 13D
Company:	Antero Resources	TVD Reference:	KB @ 5202.00ft (Original Well Elev)
Project:	Speakman	MD Reference:	KB @ 5202.00ft (Original Well Elev)
Site:	Speakman A Pad	North Reference:	Grid
Well:	BAT 13D-24-07-96 (111262)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 13D		
Design:	BAT 13D 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	14,330,480.629	776,115.038	39.420750214°N	108.060242310°W	
100.00	0.00	0.00	100.00	0.00	0.00	14,330,480.629	776,115.038	39.420750214°N	108.060242310°W	
200.00	0.00	0.00	200.00	0.00	0.00	14,330,480.629	776,115.038	39.420750214°N	108.060242310°W	
KOP 3°/100 at 200 MD/TVD										
300.00	3.00	254.35	299.95	-0.71	-2.52	14,330,479.923	776,112.518	39.420748043°N	108.060251138°W	
400.00	6.00	254.35	399.63	-2.82	-10.07	14,330,477.807	776,104.964	39.420741536°N	108.060277595°W	
500.00	9.00	254.35	498.77	-6.34	-22.64	14,330,474.286	776,092.396	39.420730710°N	108.060321610°W	
600.00	12.00	254.35	597.08	-11.26	-40.19	14,330,469.371	776,074.850	39.420715596°N	108.060383062°W	
700.00	15.00	254.35	694.31	-17.56	-62.66	14,330,463.074	776,052.374	39.420696234°N	108.060461782°W	
800.00	18.00	254.35	790.18	-25.22	-90.01	14,330,455.414	776,025.029	39.420672678°N	108.060557555°W	
900.00	21.00	254.35	884.43	-34.22	-122.15	14,330,446.410	775,992.889	39.420644992°N	108.060670118°W	
1,000.00	24.00	254.35	976.81	-44.54	-158.99	14,330,436.088	775,956.044	39.420613252°N	108.060799163°W	
1,025.00	24.75	254.35	999.58	-47.33	-168.93	14,330,433.304	775,946.109	39.420604694°N	108.060833959°W	
Surf Csg at 1025 MD/1000 TVD										
1,075.00	24.75	254.35	1,044.99	-52.97	-189.09	14,330,427.656	775,925.952	39.420587326°N	108.060904554°W	
Build 3°/100 at 1075 MD/1045 TVD										
1,100.00	25.50	254.35	1,067.62	-55.84	-199.31	14,330,424.792	775,915.731	39.420578519°N	108.060940351°W	
1,200.00	28.50	254.35	1,156.71	-68.09	-243.02	14,330,412.543	775,872.021	39.420540855°N	108.061093437°W	
1,300.00	31.50	254.35	1,243.31	-81.58	-291.16	14,330,399.053	775,823.881	39.420499375°N	108.061262038°W	
1,400.00	34.50	254.35	1,327.16	-96.27	-343.60	14,330,384.359	775,771.444	39.420454190°N	108.061445691°W	
1,401.62	34.55	254.35	1,328.50	-96.52	-344.48	14,330,384.111	775,770.560	39.420453429°N	108.061448787°W	
Hold 35° at 1402 MD/1329 TVD										
1,500.00	34.55	254.35	1,409.53	-111.57	-398.20	14,330,369.056	775,716.838	39.420407137°N	108.061636938°W	
1,600.00	34.55	254.35	1,491.89	-126.88	-452.81	14,330,353.754	775,662.231	39.420360083°N	108.061828188°W	
1,700.00	34.55	254.35	1,574.26	-142.18	-507.42	14,330,338.452	775,607.624	39.420313029°N	108.062019437°W	
1,800.00	34.55	254.35	1,656.62	-157.48	-562.02	14,330,323.149	775,553.017	39.420265974°N	108.062210686°W	
1,900.00	34.55	254.35	1,738.99	-172.78	-616.63	14,330,307.847	775,498.410	39.420218919°N	108.062401935°W	
2,000.00	34.55	254.35	1,821.35	-188.09	-671.24	14,330,292.545	775,443.803	39.420171864°N	108.062593183°W	
2,100.00	34.55	254.35	1,903.72	-203.39	-725.84	14,330,277.242	775,389.197	39.420124809°N	108.062784431°W	
2,200.00	34.55	254.35	1,986.08	-218.69	-780.45	14,330,261.940	775,334.590	39.420077753°N	108.062975679°W	
2,300.00	34.55	254.35	2,068.44	-233.99	-835.06	14,330,246.638	775,279.983	39.420030697°N	108.063166926°W	
2,400.00	34.55	254.35	2,150.81	-249.29	-889.66	14,330,231.335	775,225.376	39.419983640°N	108.063358174°W	
2,500.00	34.55	254.35	2,233.17	-264.60	-944.27	14,330,216.033	775,170.769	39.419936584°N	108.063549421°W	
2,600.00	34.55	254.35	2,315.54	-279.90	-998.88	14,330,200.731	775,116.162	39.419889527°N	108.063740667°W	
2,700.00	34.55	254.35	2,397.90	-295.20	-1,053.48	14,330,185.428	775,061.556	39.419842469°N	108.063931914°W	
2,713.36	34.55	254.35	2,408.91	-297.25	-1,060.78	14,330,183.384	775,054.260	39.419836182°N	108.063957464°W	
Drop 3°/100 at 2713 MD/2409 TVD										
2,800.00	31.95	254.35	2,481.36	-310.06	-1,106.52	14,330,170.567	775,008.523	39.419796768°N	108.064117646°W	
2,900.00	28.95	254.35	2,567.56	-323.74	-1,155.31	14,330,156.894	774,959.731	39.419754721°N	108.064288528°W	
2,927.82	28.11	254.35	2,592.00	-327.32	-1,168.11	14,330,153.308	774,946.934	39.419743693°N	108.064333347°W	
Mesaverde										
3,000.00	25.95	254.35	2,656.29	-336.17	-1,199.69	14,330,144.457	774,915.349	39.419716475°N	108.064443963°W	
3,100.00	22.95	254.35	2,747.31	-347.34	-1,239.54	14,330,133.290	774,875.500	39.419682134°N	108.064583524°W	
3,200.00	19.95	254.35	2,840.37	-357.21	-1,274.75	14,330,123.424	774,840.293	39.419651793°N	108.064706828°W	
3,300.00	16.95	254.35	2,935.22	-365.74	-1,305.22	14,330,114.886	774,809.823	39.419625535°N	108.064813539°W	
3,400.00	13.95	254.35	3,031.60	-372.93	-1,330.87	14,330,107.699	774,784.175	39.419603433°N	108.064903363°W	
3,500.00	10.95	254.35	3,129.24	-378.75	-1,351.62	14,330,101.882	774,763.420	39.419585546°N	108.064976054°W	
3,600.00	7.95	254.35	3,227.87	-383.18	-1,367.43	14,330,097.453	774,747.613	39.419571923°N	108.065031414°W	
3,700.00	4.95	254.35	3,327.22	-386.21	-1,378.24	14,330,094.422	774,736.798	39.419562603°N	108.065069289°W	
3,800.00	1.95	254.35	3,427.03	-387.83	-1,384.04	14,330,092.799	774,731.005	39.419557611°N	108.065089578°W	
3,864.98	0.00	0.00	3,492.00	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W	
Vertical at 3865 MD/3492 TVD - Top Gas										
3,900.00	0.00	0.00	3,527.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well BAT 13D-24-07-96 (111262) - Slot BAT 13D
Company:	Antero Resources	TVD Reference:	KB @ 5202.00ft (Original Well Elev)
Project:	Speakman	MD Reference:	KB @ 5202.00ft (Original Well Elev)
Site:	Speakman A Pad	North Reference:	Grid
Well:	BAT 13D-24-07-96 (111262)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 13D		
Design:	BAT 13D 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
4,000.00	0.00	0.00	3,627.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
4,100.00	0.00	0.00	3,727.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
4,200.00	0.00	0.00	3,827.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
4,300.00	0.00	0.00	3,927.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
4,400.00	0.00	0.00	4,027.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
4,500.00	0.00	0.00	4,127.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
4,600.00	0.00	0.00	4,227.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
4,700.00	0.00	0.00	4,327.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
4,800.00	0.00	0.00	4,427.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
4,900.00	0.00	0.00	4,527.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,000.00	0.00	0.00	4,627.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,100.00	0.00	0.00	4,727.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,164.98	0.00	0.00	4,792.00	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
Cameo									
5,200.00	0.00	0.00	4,827.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,300.00	0.00	0.00	4,927.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,400.00	0.00	0.00	5,027.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,500.00	0.00	0.00	5,127.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,600.00	0.00	0.00	5,227.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,700.00	0.00	0.00	5,327.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,800.00	0.00	0.00	5,427.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,864.98	0.00	0.00	5,492.00	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
Rollins									
5,900.00	0.00	0.00	5,527.02	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
5,964.98	0.00	0.00	5,592.00	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W
TD at 5965 MD/5592 TVD									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
13D Top Gas - plan hits target center - Circle (radius 25.00)	0.00	360.00	3,492.00	-388.13	-1,385.10	14,330,092.501	774,729.940	39.419556694°N	108.065093305°W

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,025.00	999.58	Surf Csg at 1025 MD/1000 TVD	5.50	6.00

ARK Directional Services

Planning Report - Geographic

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Company:	Antero Resources	TVD Reference:	KB @ 5202.00ft (Original Well Elev)
Project:	Speakman	MD Reference:	KB @ 5202.00ft (Original Well Elev)
Site:	Speakman A Pad	North Reference:	Grid
Well:	BAT 13D-24-07-96 (111262)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 13D		
Design:	BAT 13D P01		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,927.82	2,592.00	Mesaverde			
3,864.98	3,492.00	Top Gas			
5,164.98	4,792.00	Cameo			
5,864.98	5,492.00	Rollins			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.00	200.00	0.00	0.00	KOP 3°/100 at 200 MD/TVD	
1,075.00	1,044.99	-52.97	-189.09	Build 3°/100 at 1075 MD/1045 TVD	
1,401.62	1,328.50	-96.52	-344.48	Hold 35° at 1402 MD/1329 TVD	
2,713.36	2,408.91	-297.25	-1,060.78	Drop 3°/100 at 2713 MD/2409 TVD	
3,864.98	3,492.00	-388.13	-1,385.10	Vertical at 3865 MD/3492 TVD	
5,964.98	5,592.00	-388.13	-1,385.10	TD at 5965 MD/5592 TVD	