



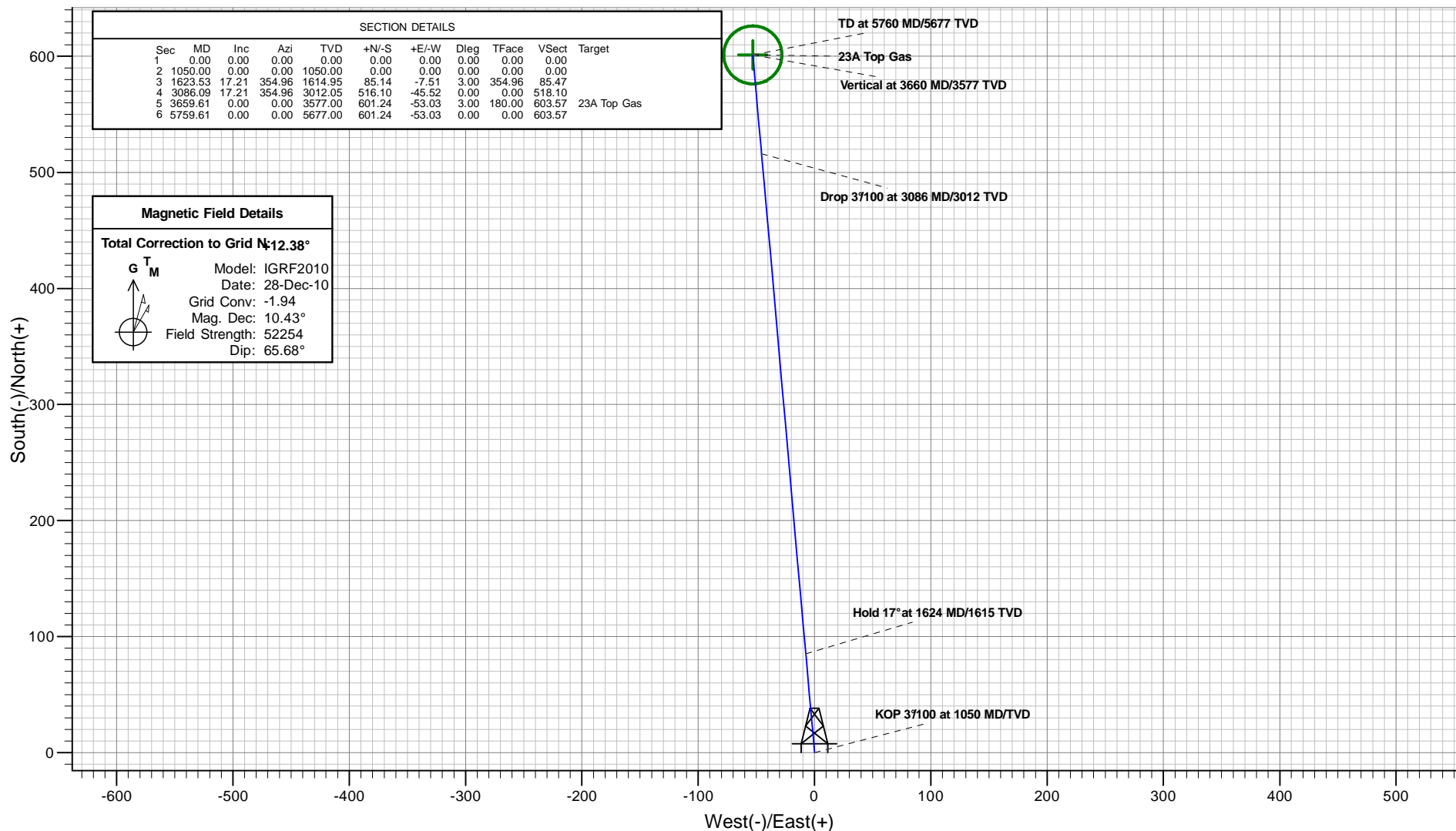
Antero Resources

BAT 23A-24-07-96 (111256)



PLAN VIEW

Project: Speakman
Site: Speakman A Pad
Well: BAT 23A-24-07-96 (111256)
Wellbore: BAT 23A
Design: BAT 23A P01



Plan: BAT 23A P01
Created By: ARK Directional Services
Date: 9:42, October 19 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 23A-24-07-96 (111256) - Slot BAT 23A, Grid North
Vertical (TVD) Reference: KB @ 5202.00ft (Original Well Elev)
Section (VS) Reference: Slot - BAT 23A(0.00N, 0.00E)
Measured Depth Reference: KB @ 5202.00ft (Original Well Elev)
Calculation Method: Minimum Curvature



Antero Resources

BAT 23A-24-07-96 (111256)



VERTICAL SECTION VIEW



REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well BAT 23A-24-07-96 (111256) - Slot BAT 23A, Grid North
Vertical (TVD) Reference: KB @ 5202.00ft (Original Well Elev)
Section (VS) Reference: Slot - BAT 23A(0.00N, 0.00E)
Measured Depth Reference: KB @ 5202.00ft (Original Well Elev)
Calculation Method: Minimum Curvature

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

Plan: BAT 23A P01
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Date: 9:41, October 19 2010

Magnetic Field Details

Total Correction to Grid N=12.38°

G T M Model: IGRF2010
Date: 28-Dec-10
Grid Conv: -1.94
Mag. Dec: 10.43°
Field Strength: 52254
Dip: 65.68°

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2677.00	2735.34	Mesaverde
3577.00	3659.61	Top Gas
4877.00	4959.61	Cameo
5577.00	5659.61	Rollins

Antero Resources

Speakman

Speakman A Pad

BAT 23A-24-07-96 (111256) - Slot BAT 23A

BAT 23A

Plan: BAT 23A P01

Standard Planning Report - Geographic

19 October, 2010

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well BAT 23A-24-07-96 (111256) - Slot BAT 23A
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 23A-24-07-96 (111256)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 23A		
Design:	BAT 23A 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 23A-24-07-96 (111256) - Slot BAT 23A		
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 23A				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2010/12/28	10.43	65.68	52,254

Design	BAT 23A P01			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	3,577.00	0.00	0.00	354.96

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	
1,050.00	0.00	0.00	1,050.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,623.53	17.21	354.96	1,614.95	85.14	-7.51	3.00	3.00	0.00	354.96	
3,086.09	17.21	354.96	3,012.05	516.10	-45.52	0.00	0.00	0.00	0.00	
3,659.61	0.00	0.00	3,577.00	601.24	-53.03	3.00	-3.00	0.00	180.00	23A Top Gas
5,759.61	0.00	0.00	5,677.00	601.24	-53.03	0.00	0.00	0.00	0.00	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well BAT 23A-24-07-96 (111256) - Slot BAT 23A
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 23A-24-07-96 (111256)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 23A		
Design:	BAT 23A 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	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
100.00	0.00	0.00	100.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
200.00	0.00	0.00	200.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
300.00	0.00	0.00	300.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
400.00	0.00	0.00	400.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
500.00	0.00	0.00	500.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
600.00	0.00	0.00	600.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
700.00	0.00	0.00	700.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
800.00	0.00	0.00	800.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
900.00	0.00	0.00	900.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
Surf Csg at 1000 MD/TVD										
1,050.00	0.00	0.00	1,050.00	0.00	0.00	14,330,514.254	776,115.776	39.420842501°N	108.060243737°W	
KOP 3°/100 at 1050 MD/TVD										
1,100.00	1.50	354.96	1,099.99	0.65	-0.06	14,330,514.906	776,115.719	39.420844284°N	108.060244019°W	
1,200.00	4.50	354.96	1,199.85	5.86	-0.52	14,330,520.119	776,115.259	39.420858537°N	108.060246270°W	
1,300.00	7.50	354.96	1,299.29	16.28	-1.44	14,330,530.530	776,114.341	39.420887005°N	108.060250767°W	
1,400.00	10.50	354.96	1,398.04	31.86	-2.81	14,330,546.111	776,112.966	39.420929609°N	108.060257497°W	
1,500.00	13.50	354.96	1,495.85	52.57	-4.64	14,330,566.820	776,111.140	39.420986232°N	108.060266441°W	
1,600.00	16.50	354.96	1,592.43	78.34	-6.91	14,330,592.599	776,108.866	39.421056720°N	108.060277575°W	
1,623.53	17.21	354.96	1,614.95	85.14	-7.51	14,330,599.393	776,108.267	39.421075299°N	108.060280509°W	
Hold 17° at 1624 MD/1615 TVD										
1,700.00	17.21	354.96	1,688.00	107.67	-9.50	14,330,621.927	776,106.280	39.421136913°N	108.060290242°W	
1,800.00	17.21	354.96	1,783.52	137.14	-12.10	14,330,651.393	776,103.681	39.421217483°N	108.060302968°W	
1,900.00	17.21	354.96	1,879.05	166.60	-14.69	14,330,680.859	776,101.082	39.421298053°N	108.060315695°W	
2,000.00	17.21	354.96	1,974.57	196.07	-17.29	14,330,710.325	776,098.483	39.421378623°N	108.060328422°W	
2,100.00	17.21	354.96	2,070.10	225.54	-19.89	14,330,739.791	776,095.885	39.421459193°N	108.060341149°W	
2,200.00	17.21	354.96	2,165.62	255.00	-22.49	14,330,769.257	776,093.286	39.421539763°N	108.060353875°W	
2,300.00	17.21	354.96	2,261.15	284.47	-25.09	14,330,798.723	776,090.687	39.421620333°N	108.060366602°W	
2,400.00	17.21	354.96	2,356.67	313.94	-27.69	14,330,828.189	776,088.088	39.421700903°N	108.060379329°W	
2,500.00	17.21	354.96	2,452.20	343.40	-30.29	14,330,857.656	776,085.490	39.421781473°N	108.060392056°W	
2,600.00	17.21	354.96	2,547.72	372.87	-32.89	14,330,887.122	776,082.891	39.421862044°N	108.060404783°W	
2,700.00	17.21	354.96	2,643.24	402.33	-35.48	14,330,916.588	776,080.292	39.421942614°N	108.060417510°W	
2,735.34	17.21	354.96	2,677.00	412.75	-36.40	14,330,927.000	776,079.374	39.421971085°N	108.060422007°W	
Mesaverde										
2,800.00	17.21	354.96	2,738.77	431.80	-38.08	14,330,946.054	776,077.693	39.422023184°N	108.060430237°W	
2,900.00	17.21	354.96	2,834.29	461.27	-40.68	14,330,975.520	776,075.094	39.422103754°N	108.060442964°W	
3,000.00	17.21	354.96	2,929.82	490.73	-43.28	14,331,004.986	776,072.496	39.422184324°N	108.060455691°W	
3,086.09	17.21	354.96	3,012.05	516.10	-45.52	14,331,030.353	776,070.258	39.422253684°N	108.060466647°W	
Drop 3°/100 at 3086 MD/3012 TVD										
3,100.00	16.79	354.96	3,025.36	520.15	-45.88	14,331,034.404	776,069.901	39.422264762°N	108.060468397°W	
3,200.00	13.79	354.96	3,121.81	546.41	-48.19	14,331,060.667	776,067.585	39.422336573°N	108.060479741°W	
3,300.00	10.79	354.96	3,219.51	567.61	-50.06	14,331,081.866	776,065.715	39.422394537°N	108.060488897°W	
3,400.00	7.79	354.96	3,318.18	583.69	-51.48	14,331,097.942	776,064.297	39.422438495°N	108.060495841°W	
3,500.00	4.79	354.96	3,417.57	594.60	-52.44	14,331,108.851	776,063.335	39.422468326°N	108.060500553°W	
3,600.00	1.79	354.96	3,517.39	600.31	-52.95	14,331,114.565	776,062.831	39.422483948°N	108.060503021°W	
3,659.61	0.00	0.00	3,577.00	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W	
Vertical at 3660 MD/3577 TVD - Top Gas										
3,700.00	0.00	0.00	3,617.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W	
3,800.00	0.00	0.00	3,717.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W	
3,900.00	0.00	0.00	3,817.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W	
4,000.00	0.00	0.00	3,917.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W	
4,100.00	0.00	0.00	4,017.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W	

ARK Directional Services

Planning Report - Geographic

Database:	EDM SERVER DB	Local Co-ordinate Reference:	Well BAT 23A-24-07-96 (111256) - Slot BAT 23A
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 23A-24-07-96 (111256)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 23A		
Design:	BAT 23A 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
4,200.00	0.00	0.00	4,117.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
4,300.00	0.00	0.00	4,217.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
4,400.00	0.00	0.00	4,317.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
4,500.00	0.00	0.00	4,417.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
4,600.00	0.00	0.00	4,517.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
4,700.00	0.00	0.00	4,617.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
4,800.00	0.00	0.00	4,717.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
4,900.00	0.00	0.00	4,817.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
4,959.61	0.00	0.00	4,877.00	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
Cameo									
5,000.00	0.00	0.00	4,917.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
5,100.00	0.00	0.00	5,017.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
5,200.00	0.00	0.00	5,117.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
5,300.00	0.00	0.00	5,217.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
5,400.00	0.00	0.00	5,317.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
5,500.00	0.00	0.00	5,417.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
5,600.00	0.00	0.00	5,517.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
5,659.61	0.00	0.00	5,577.00	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
Rollins									
5,700.00	0.00	0.00	5,617.39	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
5,759.61	0.00	0.00	5,677.00	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W
TD at 5760 MD/5677 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
23A Top Gas - plan hits target center - Circle (radius 25.00)	0.00	360.00	3,577.00	601.24	-53.03	14,331,115.492	776,062.749	39.422486482°N	108.060503421°W

Casing Points

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

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,735.34	2,677.00	Mesaverde			
3,659.61	3,577.00	Top Gas			
4,959.61	4,877.00	Cameo			
5,659.61	5,577.00	Rollins			

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 23A-24-07-96 (111256)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 23A		
Design:	BAT 23A P01		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,050.00	1,050.00	0.00	0.00	KOP 3°/100 at 1050 MD/TVD	
1,623.53	1,614.95	85.14	-7.51	Hold 17° at 1624 MD/1615 TVD	
3,086.09	3,012.05	516.10	-45.52	Drop 3°/100 at 3086 MD/3012 TVD	
3,659.61	3,577.00	601.24	-53.03	Vertical at 3660 MD/3577 TVD	
5,759.61	5,677.00	601.24	-53.03	TD at 5760 MD/5677 TVD	