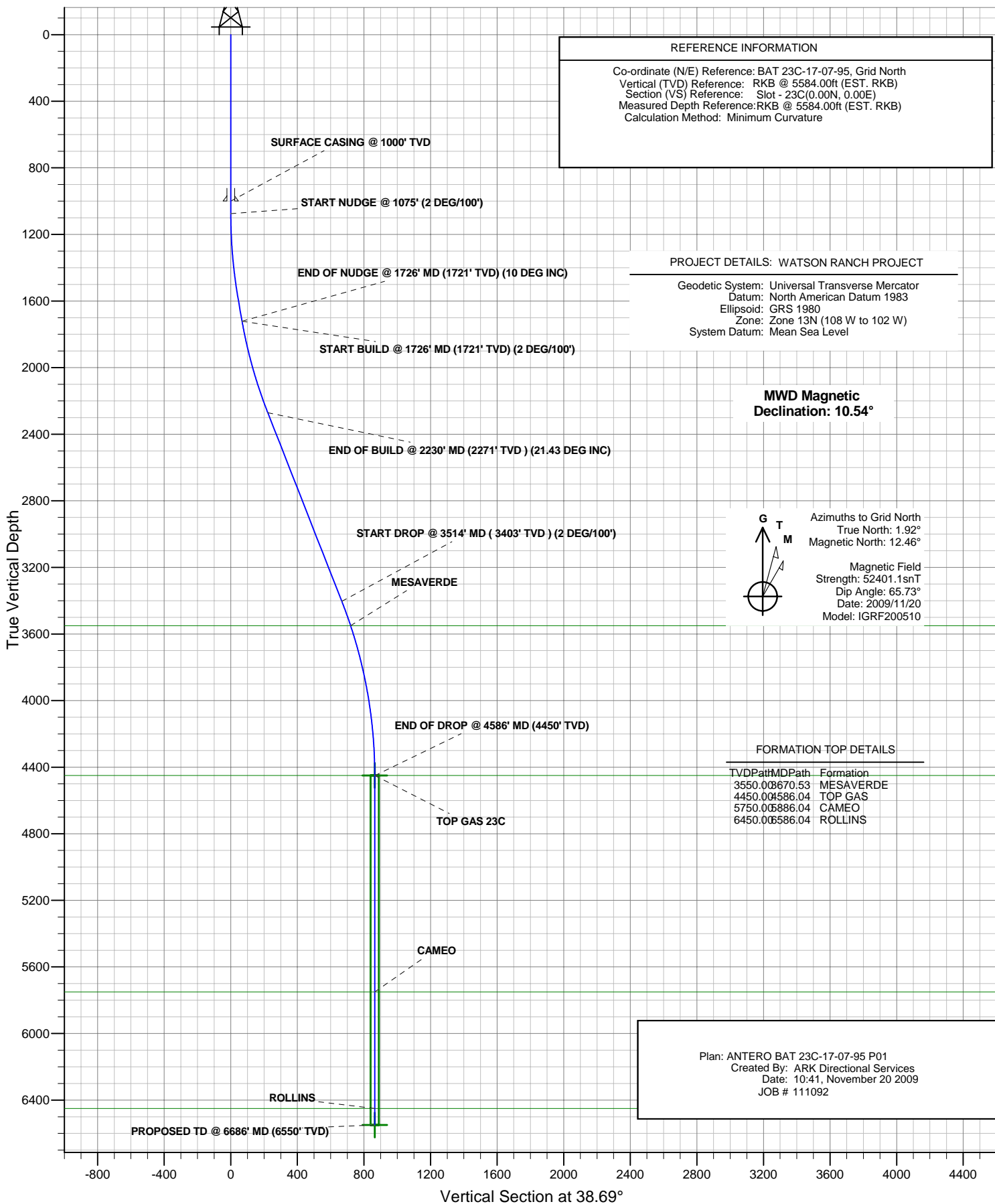




ANTERO RESOURCES

BAT 23C-17-07-95



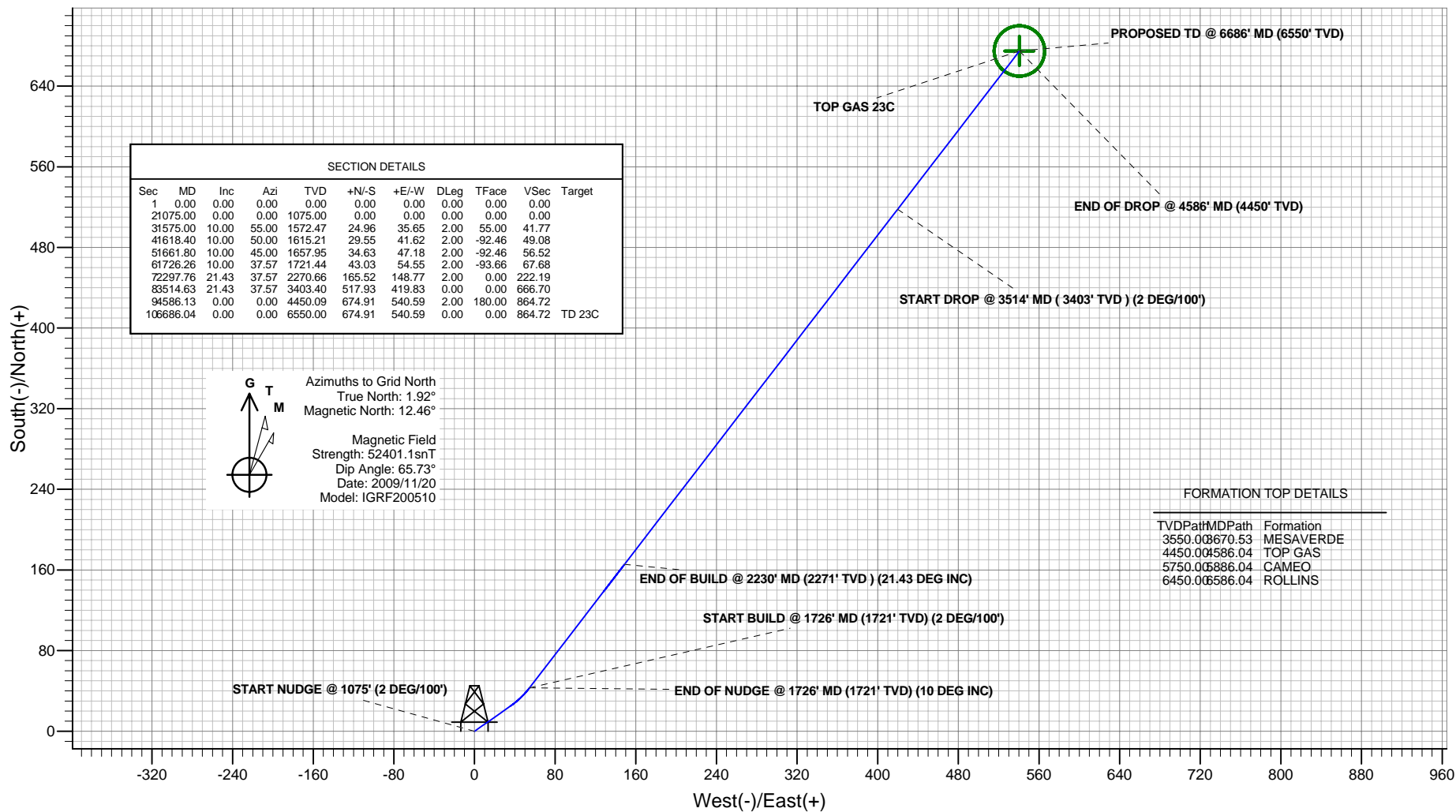


ANTERO RESOURCES

Project: WATSON RANCH PROJECT
Site: FRONTIER 12
Well: BAT 23C-17-07-95 (111092)
Wellbore: BAT 23C-17-07-95
Design: ANTERO BAT 23C-17-07-95 P01
JOB # 111092



PLAN VIEW



Plan: ANTERO BAT 23C-17-07-95 P01
Created By: ARK Directional Services
Date: 10:44, November 20 2009

PROJECT DETAILS: WATSON RANCH PROJECT

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: BAT 23C-17-07-95, Grid North
Vertical (TVD) Reference: RKB @ 5584.00ft (EST. RKB)
Section (VS) Reference: Slot - 23C(0.00N, 0.00E)
Measured Depth Reference: RKB @ 5584.00ft (EST. RKB)
Calculation Method: Minimum Curvature

ANTERO RESOURCES

**WATSON RANCH PROJECT
FRONTIER 12**

Plan: ANTERO BAT 23C-17-07-95 P01

Standard Planning Report - Geographic

20 November, 2009

Planning Report - Geographic

Database:	EDMDB	Local Co-ordinate Reference:	Well BAT 23C-17-07-95 (111092) - Slot 23C
Company:	ANTERO RESOURCES	TVD Reference:	RKB @ 5584.00ft (EST. RKB)
Project:	WATSON RANCH PROJECT	MD Reference:	RKB @ 5584.00ft (EST. RKB)
Site:	FRONTIER 12	North Reference:	Grid
Well:	BAT 23C-17-07-95 (111092)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 23C-17-07-95		
Design:	ANTERO BAT 23C-17-07-95 P01		

Project	WATSON RANCH PROJECT		
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		FRONTIER 12			
Site Position:		Northing:	14,334,677.52 ft	Latitude:	39° 25' 59.496 N
From:	Map	Easting:	786,189.76 ft	Longitude:	108° 1' 30.416 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	-1.92 °

Well	BAT 23C-17-07-95 (111092) - Slot 23C					
Well Position	+N/-S	-42.36 ft	Northing:	14,334,635.16 ft	Latitude:	39° 25' 59.073 N
	+E/-W	-15.25 ft	Easting:	786,174.51 ft	Longitude:	108° 1' 30.592 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,560.00 ft

Wellbore	BAT 23C-17-07-95				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2009/11/20	10.54	65.73	52,401

Design	ANTERO BAT 23C-17-07-95 P01				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	38.69	

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	
1,075.00	0.00	0.00	1,075.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,575.00	10.00	55.00	1,572.47	24.96	35.65	2.00	2.00	0.00	55.00	
1,618.40	10.00	50.00	1,615.21	29.55	41.62	2.00	0.00	-11.52	-92.46	
1,661.80	10.00	45.00	1,657.95	34.63	47.18	2.00	0.00	-11.52	-92.46	
1,726.26	10.00	37.57	1,721.44	43.03	54.55	2.00	0.00	-11.53	-93.66	
2,297.76	21.43	37.57	2,270.66	165.52	148.77	2.00	2.00	0.00	0.00	
3,514.63	21.43	37.57	3,403.40	517.93	419.83	0.00	0.00	0.00	0.00	
4,586.13	0.00	0.00	4,450.09	674.91	540.59	2.00	-2.00	0.00	180.00	
6,686.04	0.00	0.00	6,550.00	674.91	540.59	0.00	0.00	0.00	0.00	TD 23C

Planning Report - Geographic

Database:	EDMDB	Local Co-ordinate Reference:	Well BAT 23C-17-07-95 (111092) - Slot 23C
Company:	ANTERO RESOURCES	TVD Reference:	RKB @ 5584.00ft (EST. RKB)
Project:	WATSON RANCH PROJECT	MD Reference:	RKB @ 5584.00ft (EST. RKB)
Site:	FRONTIER 12	North Reference:	Grid
Well:	BAT 23C-17-07-95 (111092)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 23C-17-07-95		
Design:	ANTERO BAT 23C-17-07-95 P01		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
100.00	0.00	0.00	100.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
200.00	0.00	0.00	200.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
300.00	0.00	0.00	300.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
400.00	0.00	0.00	400.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
500.00	0.00	0.00	500.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
600.00	0.00	0.00	600.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
700.00	0.00	0.00	700.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
800.00	0.00	0.00	800.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
900.00	0.00	0.00	900.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
SURFACE CASING @ 1000' TVD									
1,075.00	0.00	0.00	1,075.00	0.00	0.00	14,334,635.16	786,174.51	39° 25' 59.073 N	108° 1' 30.592 W
START NUDGE @ 1075' (2 DEG/100')									
1,100.00	0.50	55.00	1,100.00	0.06	0.09	14,334,635.22	786,174.60	39° 25' 59.073 N	108° 1' 30.591 W
1,200.00	2.50	55.00	1,199.96	1.56	2.23	14,334,636.72	786,176.74	39° 25' 59.089 N	108° 1' 30.564 W
1,300.00	4.50	55.00	1,299.77	5.07	7.23	14,334,640.23	786,181.74	39° 25' 59.125 N	108° 1' 30.502 W
1,400.00	6.50	55.00	1,399.30	10.56	15.08	14,334,645.72	786,189.59	39° 25' 59.182 N	108° 1' 30.405 W
1,500.00	8.50	55.00	1,498.44	18.05	25.78	14,334,653.21	786,200.29	39° 25' 59.259 N	108° 1' 30.272 W
1,575.00	10.00	55.00	1,572.47	24.96	35.65	14,334,660.12	786,210.16	39° 25' 59.331 N	108° 1' 30.149 W
1,600.00	9.99	52.12	1,597.09	27.54	39.14	14,334,662.70	786,213.65	39° 25' 59.358 N	108° 1' 30.106 W
1,618.40	10.00	50.00	1,615.21	29.55	41.62	14,334,664.71	786,216.13	39° 25' 59.378 N	108° 1' 30.075 W
1,661.80	10.00	45.00	1,657.95	34.63	47.18	14,334,669.79	786,221.69	39° 25' 59.430 N	108° 1' 30.006 W
1,700.00	9.98	40.60	1,695.57	39.49	51.68	14,334,674.65	786,226.19	39° 25' 59.480 N	108° 1' 29.951 W
1,726.26	10.00	37.57	1,721.43	43.03	54.55	14,334,678.19	786,229.06	39° 25' 59.516 N	108° 1' 29.916 W
END OF NUDGE @ 1726' MD (1721' TVD) (10 DEG INC) - START BUILD @ 1726' MD (1721' TVD) (2 DEG/100')									
1,800.00	11.47	37.57	1,793.88	53.92	62.92	14,334,689.08	786,237.43	39° 25' 59.626 N	108° 1' 29.814 W
1,900.00	13.47	37.57	1,891.51	71.04	76.09	14,334,706.20	786,250.60	39° 25' 59.799 N	108° 1' 29.654 W
2,000.00	15.47	37.57	1,988.33	90.85	91.33	14,334,726.01	786,265.84	39° 26' 0.000 N	108° 1' 29.468 W
2,100.00	17.47	37.57	2,084.22	113.32	108.62	14,334,748.48	786,283.13	39° 26' 0.228 N	108° 1' 29.258 W
2,200.00	19.47	37.57	2,179.06	138.44	127.94	14,334,773.60	786,302.45	39° 26' 0.482 N	108° 1' 29.022 W
2,297.76	21.43	37.57	2,270.66	165.51	148.77	14,334,800.67	786,323.28	39° 26' 0.756 N	108° 1' 28.769 W
END OF BUILD @ 2230' MD (2271' TVD) (21.43 DEG INC)									
2,300.00	21.43	37.57	2,272.74	166.17	149.26	14,334,801.33	786,323.77	39° 26' 0.763 N	108° 1' 28.763 W
2,400.00	21.43	37.57	2,365.83	195.13	171.54	14,334,830.29	786,346.05	39° 26' 1.056 N	108° 1' 28.492 W
2,500.00	21.43	37.57	2,458.92	224.09	193.82	14,334,859.25	786,368.33	39° 26' 1.349 N	108° 1' 28.220 W
2,600.00	21.43	37.57	2,552.00	253.05	216.09	14,334,888.21	786,390.60	39° 26' 1.643 N	108° 1' 27.949 W
2,700.00	21.43	37.57	2,645.09	282.01	238.37	14,334,917.17	786,412.88	39° 26' 1.936 N	108° 1' 27.678 W
2,800.00	21.43	37.57	2,738.18	310.97	260.64	14,334,946.13	786,435.15	39° 26' 2.229 N	108° 1' 27.407 W
2,900.00	21.43	37.57	2,831.26	339.93	282.92	14,334,975.09	786,457.43	39° 26' 2.523 N	108° 1' 27.135 W
3,000.00	21.43	37.57	2,924.35	368.89	305.19	14,335,004.05	786,479.70	39° 26' 2.816 N	108° 1' 26.864 W
3,100.00	21.43	37.57	3,017.43	397.85	327.47	14,335,033.01	786,501.98	39° 26' 3.109 N	108° 1' 26.593 W
3,200.00	21.43	37.57	3,110.52	426.81	349.75	14,335,061.97	786,524.26	39° 26' 3.403 N	108° 1' 26.322 W
3,300.00	21.43	37.57	3,203.61	455.77	372.02	14,335,090.93	786,546.53	39° 26' 3.696 N	108° 1' 26.050 W
3,400.00	21.43	37.57	3,296.69	484.73	394.30	14,335,119.89	786,568.81	39° 26' 3.989 N	108° 1' 25.779 W
3,500.00	21.43	37.57	3,389.78	513.69	416.57	14,335,148.85	786,591.08	39° 26' 4.283 N	108° 1' 25.508 W
3,514.63	21.43	37.57	3,403.40	517.93	419.83	14,335,153.09	786,594.34	39° 26' 4.325 N	108° 1' 25.468 W
START DROP @ 3514' MD (3403' TVD) (2 DEG/100')									
3,600.00	19.72	37.57	3,483.32	541.71	438.13	14,335,176.87	786,612.63	39° 26' 4.566 N	108° 1' 25.245 W
3,670.53	18.31	37.57	3,550.00	559.92	452.14	14,335,195.08	786,626.65	39° 26' 4.751 N	108° 1' 25.075 W
MESAVERDE									
3,700.00	17.72	37.57	3,578.02	567.15	457.69	14,335,202.31	786,632.20	39° 26' 4.824 N	108° 1' 25.007 W
3,800.00	15.72	37.57	3,673.79	589.96	475.24	14,335,225.11	786,649.75	39° 26' 5.055 N	108° 1' 24.793 W
3,900.00	13.72	37.57	3,770.50	610.10	490.73	14,335,245.26	786,665.24	39° 26' 5.259 N	108° 1' 24.605 W

Planning Report - Geographic

Database:	EDMDB	Local Co-ordinate Reference:	Well BAT 23C-17-07-95 (111092) - Slot 23C
Company:	ANTERO RESOURCES	TVD Reference:	RKB @ 5584.00ft (EST. RKB)
Project:	WATSON RANCH PROJECT	MD Reference:	RKB @ 5584.00ft (EST. RKB)
Site:	FRONTIER 12	North Reference:	Grid
Well:	BAT 23C-17-07-95 (111092)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 23C-17-07-95		
Design:	ANTERO BAT 23C-17-07-95 P01		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude	
4,000.00	11.72	37.57	3,868.04	627.55	504.16	14,335,262.71	786,678.67	39° 26' 5.436 N	108° 1' 24.441 W	
4,100.00	9.72	37.57	3,966.29	642.30	515.50	14,335,277.46	786,690.01	39° 26' 5.585 N	108° 1' 24.303 W	
4,200.00	7.72	37.57	4,065.13	654.32	524.75	14,335,289.48	786,699.25	39° 26' 5.707 N	108° 1' 24.191 W	
4,300.00	5.72	37.57	4,164.44	663.60	531.88	14,335,298.76	786,706.39	39° 26' 5.801 N	108° 1' 24.104 W	
4,400.00	3.72	37.57	4,264.09	670.12	536.90	14,335,305.28	786,711.41	39° 26' 5.867 N	108° 1' 24.043 W	
4,500.00	1.72	37.57	4,363.97	673.89	539.80	14,335,309.05	786,714.31	39° 26' 5.905 N	108° 1' 24.007 W	
4,586.04	0.00	37.57	4,450.00	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
TOP GAS - TOP GAS 23C										
4,586.13	0.00	0.00	4,450.09	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
END OF DROP @ 4586' MD (4450' TVD)										
4,600.00	0.00	0.00	4,463.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
4,700.00	0.00	0.00	4,563.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
4,800.00	0.00	0.00	4,663.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
4,900.00	0.00	0.00	4,763.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
5,000.00	0.00	0.00	4,863.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
5,100.00	0.00	0.00	4,963.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
5,200.00	0.00	0.00	5,063.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
5,300.00	0.00	0.00	5,163.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
5,400.00	0.00	0.00	5,263.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
5,500.00	0.00	0.00	5,363.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
5,600.00	0.00	0.00	5,463.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
5,700.00	0.00	0.00	5,563.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
5,800.00	0.00	0.00	5,663.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
5,886.04	0.00	0.00	5,750.00	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
CAMEO										
5,900.00	0.00	0.00	5,763.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
6,000.00	0.00	0.00	5,863.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
6,100.00	0.00	0.00	5,963.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
6,200.00	0.00	0.00	6,063.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
6,300.00	0.00	0.00	6,163.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
6,400.00	0.00	0.00	6,263.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
6,500.00	0.00	0.00	6,363.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
6,586.04	0.00	0.00	6,450.00	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
ROLLINS										
6,600.00	0.00	0.00	6,463.96	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
6,686.02	0.00	0.00	6,549.98	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
PROPOSED TD @ 6686' MD (6550' TVD)										
6,686.04	0.00	0.00	6,550.00	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
TD 23C										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
- hit/miss target										
- Shape										
TOP GAS 23C		0.00	4,450.00	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
- plan hits target										
- Circle (radius 25.00)										
TD 23C	0.00	0.00	6,550.00	674.91	540.59	14,335,310.07	786,715.10	39° 26' 5.915 N	108° 1' 23.998 W	
- plan hits target										
- Circle (radius 25.00)										

Planning Report - Geographic

Database:	EDMDB	Local Co-ordinate Reference:	Well BAT 23C-17-07-95 (111092) - Slot 23C
Company:	ANTERO RESOURCES	TVD Reference:	RKB @ 5584.00ft (EST. RKB)
Project:	WATSON RANCH PROJECT	MD Reference:	RKB @ 5584.00ft (EST. RKB)
Site:	FRONTIER 12	North Reference:	Grid
Well:	BAT 23C-17-07-95 (111092)	Survey Calculation Method:	Minimum Curvature
Wellbore:	BAT 23C-17-07-95		
Design:	ANTERO BAT 23C-17-07-95 P01		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
1,000.00	1,000.00	SURFACE CASING @ 1000' TVD	8.62	12.25	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,670.53	3,550.00	MESAVERDE		0.00	
4,586.04	4,450.00	TOP GAS		0.00	
5,886.04	5,750.00	CAMEO		0.00	
6,586.04	6,450.00	ROLLINS		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,075.00	1,075.00	0.00	0.00	START NUDGE @ 1075' (2 DEG/100')	
1,726.26	1,721.43	43.03	54.55	END OF NUDGE @ 1726' MD (1721' TVD) (10 DEG INC)	
1,726.26	1,721.43	43.03	54.55	START BUILD @ 1726' MD (1721' TVD) (2 DEG/100')	
2,297.76	2,270.66	165.51	148.77	END OF BUILD @ 2230' MD (2271' TVD) (21.43 DEG INC)	
3,514.63	3,403.40	517.93	419.83	START DROP @ 3514' MD (3403' TVD) (2 DEG/100')	
4,586.13	4,450.09	674.91	540.59	END OF DROP @ 4586' MD (4450' TVD)	
6,686.02	6,549.98	674.91	540.59	PROPOSED TD @ 6686' MD (6550' TVD)	