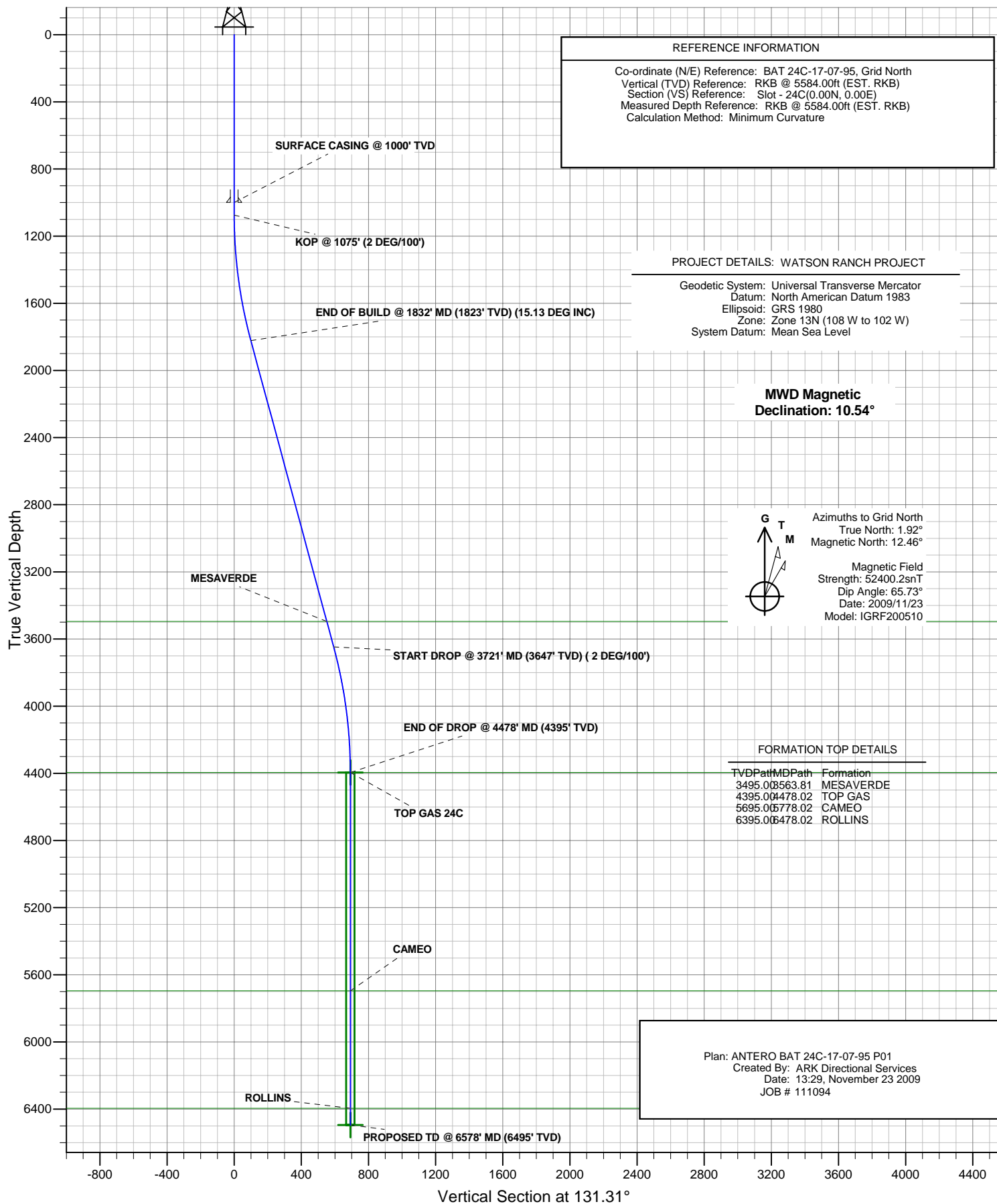




# ANTERO RESOURCES

BAT 24C-17-07-95



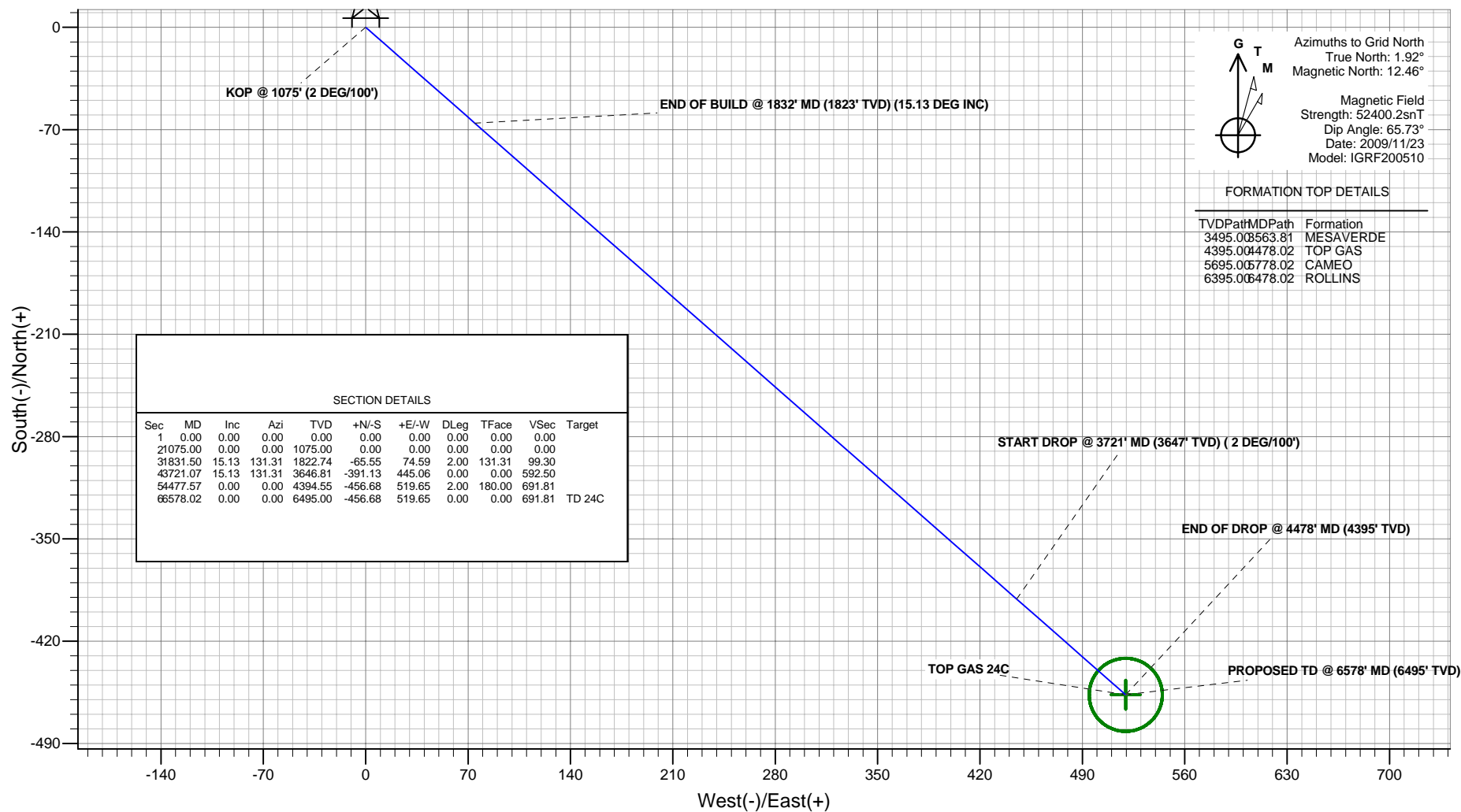


## ANTERO RESOURCES

Project: WATSON RANCH PROJECT  
Site: FRONTIER 12  
Well: BAT 24C-17-07-95 (111094)  
Wellbore: BAT 24C-17-07-95  
Design: ANTERO BAT 24C-17-07-95 P01  
JOB # 111094



### PLAN VIEW



Plan: ANTERO BAT 24C-17-07-95 P01  
Created By: ARK Directional Services  
Date: 13:32, November 23 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 24C-17-07-95, Grid North  
Vertical (TVD) Reference: RKB @ 5584.00ft (EST. RKB)  
Section (VS) Reference: Slot - 24C(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 24C-17-07-95 P01**

## **Standard Planning Report - Geographic**

**23 November, 2009**

# Planning Report - Geographic

<b>Database:</b>	EDMDB	<b>Local Co-ordinate Reference:</b>	Well BAT 24C-17-07-95 (111094) - Slot 24C
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5584.00ft (EST. RKB)
<b>Project:</b>	WATSON RANCH PROJECT	<b>MD Reference:</b>	RKB @ 5584.00ft (EST. RKB)
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	BAT 24C-17-07-95 (111094)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BAT 24C-17-07-95		
<b>Design:</b>	ANTERO BAT 24C-17-07-95 P01		

<b>Project</b>	WATSON RANCH PROJECT		
<b>Map System:</b>	Universal Transverse Mercator	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Zone 13N (108 W to 102 W)		

Site		FRONTIER 12			
Site Position:		Northing:	14,334,677.51 ft	Latitude:	39° 25' 59.496 N
From:	Map	Easting:	786,189.73 ft	Longitude:	108° 1' 30.417 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	-1.92 °

Well	BAT 24C-17-07-95 (111094) - Slot 24C					
Well Position	+N/-S	-98.81 ft	Northing:	14,334,578.70 ft	Latitude:	39° 25' 58.508 N
	+E/-W	-35.52 ft	Easting:	786,154.21 ft	Longitude:	108° 1' 30.827 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	5,560.00 ft

<b>Wellbore</b>	BAT 24C-17-07-95				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	2009/11/23	10.54	65.73	52,400

<b>Design</b>	ANTERO BAT 24C-17-07-95 P01			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	131.31

<b>Plan Sections</b>										
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	
1,831.50	15.13	131.31	1,822.74	-65.55	74.59	2.00	2.00	0.00	131.31	
3,721.07	15.13	131.31	3,646.81	-391.13	445.06	0.00	0.00	0.00	0.00	
4,477.57	0.00	0.00	4,394.55	-456.68	519.65	2.00	-2.00	0.00	180.00	
6,578.02	0.00	0.00	6,495.00	-456.68	519.65	0.00	0.00	0.00	0.00	TD 24C

# Planning Report - Geographic

<b>Database:</b>	EDMDB	<b>Local Co-ordinate Reference:</b>	Well BAT 24C-17-07-95 (111094) - Slot 24C
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5584.00ft (EST. RKB)
<b>Project:</b>	WATSON RANCH PROJECT	<b>MD Reference:</b>	RKB @ 5584.00ft (EST. RKB)
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	BAT 24C-17-07-95 (111094)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BAT 24C-17-07-95		
<b>Design:</b>	ANTERO BAT 24C-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	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
100.00	0.00	0.00	100.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
200.00	0.00	0.00	200.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
300.00	0.00	0.00	300.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
400.00	0.00	0.00	400.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
500.00	0.00	0.00	500.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
600.00	0.00	0.00	600.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
700.00	0.00	0.00	700.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
800.00	0.00	0.00	800.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
900.00	0.00	0.00	900.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
1,000.00	0.00	0.00	1,000.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
<b>SURFACE CASING @ 1000' TVD</b>									
1,075.00	0.00	0.00	1,075.00	0.00	0.00	14,334,578.70	786,154.21	39° 25' 58.508 N	108° 1' 30.827 W
<b>KOP @ 1075' (2 DEG/100')</b>									
1,100.00	0.50	131.31	1,100.00	-0.07	0.08	14,334,578.63	786,154.29	39° 25' 58.508 N	108° 1' 30.825 W
1,200.00	2.50	131.31	1,199.96	-1.80	2.05	14,334,576.90	786,156.26	39° 25' 58.491 N	108° 1' 30.800 W
1,300.00	4.50	131.31	1,299.77	-5.83	6.63	14,334,572.87	786,160.84	39° 25' 58.453 N	108° 1' 30.740 W
1,400.00	6.50	131.31	1,399.30	-12.16	13.83	14,334,566.54	786,168.04	39° 25' 58.393 N	108° 1' 30.645 W
1,500.00	8.50	131.31	1,498.44	-20.77	23.64	14,334,557.93	786,177.85	39° 25' 58.311 N	108° 1' 30.517 W
1,600.00	10.50	131.31	1,597.07	-31.67	36.03	14,334,547.03	786,190.24	39° 25' 58.208 N	108° 1' 30.354 W
1,700.00	12.50	131.31	1,695.05	-44.83	51.01	14,334,533.87	786,205.22	39° 25' 58.083 N	108° 1' 30.158 W
1,800.00	14.50	131.31	1,792.29	-60.24	68.54	14,334,518.46	786,222.75	39° 25' 57.936 N	108° 1' 29.928 W
1,831.50	15.13	131.31	1,822.74	-65.55	74.59	14,334,513.15	786,228.80	39° 25' 57.886 N	108° 1' 29.849 W
<b>END OF BUILD @ 1832' MD (1823' TVD) (15.13 DEG INC)</b>									
1,900.00	15.13	131.31	1,888.86	-77.36	88.02	14,334,501.34	786,242.23	39° 25' 57.774 N	108° 1' 29.673 W
2,000.00	15.13	131.31	1,985.40	-94.59	107.63	14,334,484.11	786,261.84	39° 25' 57.610 N	108° 1' 29.416 W
2,100.00	15.13	131.31	2,081.93	-111.82	127.23	14,334,466.88	786,281.44	39° 25' 57.447 N	108° 1' 29.159 W
2,200.00	15.13	131.31	2,178.46	-129.05	146.84	14,334,449.65	786,301.05	39° 25' 57.283 N	108° 1' 28.902 W
2,300.00	15.13	131.31	2,275.00	-146.28	166.45	14,334,432.42	786,320.66	39° 25' 57.119 N	108° 1' 28.645 W
2,400.00	15.13	131.31	2,371.53	-163.51	186.05	14,334,415.19	786,340.26	39° 25' 56.956 N	108° 1' 28.388 W
2,500.00	15.13	131.31	2,468.07	-180.74	205.66	14,334,397.96	786,359.87	39° 25' 56.792 N	108° 1' 28.131 W
2,600.00	15.13	131.31	2,564.60	-197.97	225.26	14,334,380.73	786,379.47	39° 25' 56.628 N	108° 1' 27.874 W
2,700.00	15.13	131.31	2,661.13	-215.20	244.87	14,334,363.50	786,399.08	39° 25' 56.465 N	108° 1' 27.617 W
2,800.00	15.13	131.31	2,757.67	-232.43	264.47	14,334,346.27	786,418.68	39° 25' 56.301 N	108° 1' 27.360 W
2,900.00	15.13	131.31	2,854.20	-249.66	284.08	14,334,329.04	786,438.29	39° 25' 56.138 N	108° 1' 27.103 W
3,000.00	15.13	131.31	2,950.73	-266.89	303.69	14,334,311.81	786,457.90	39° 25' 55.974 N	108° 1' 26.846 W
3,100.00	15.13	131.31	3,047.27	-284.12	323.29	14,334,294.58	786,477.50	39° 25' 55.810 N	108° 1' 26.589 W
3,200.00	15.13	131.31	3,143.80	-301.35	342.90	14,334,277.35	786,497.11	39° 25' 55.647 N	108° 1' 26.332 W
3,300.00	15.13	131.31	3,240.33	-318.58	362.50	14,334,260.12	786,516.71	39° 25' 55.483 N	108° 1' 26.075 W
3,400.00	15.13	131.31	3,336.87	-335.81	382.11	14,334,242.89	786,536.32	39° 25' 55.319 N	108° 1' 25.818 W
3,500.00	15.13	131.31	3,433.40	-353.04	401.71	14,334,225.66	786,555.92	39° 25' 55.156 N	108° 1' 25.561 W
3,563.81	15.13	131.31	3,495.00	-364.03	414.23	14,334,214.67	786,568.43	39° 25' 55.051 N	108° 1' 25.397 W
<b>MESAVERDE</b>									
3,600.00	15.13	131.31	3,529.94	-370.27	421.32	14,334,208.43	786,575.53	39° 25' 54.992 N	108° 1' 25.304 W
3,700.00	15.13	131.31	3,626.47	-387.50	440.93	14,334,191.20	786,595.14	39° 25' 54.829 N	108° 1' 25.047 W
3,721.07	15.13	131.31	3,646.81	-391.13	445.06	14,334,187.57	786,599.27	39° 25' 54.794 N	108° 1' 24.993 W
<b>START DROP @ 3721' MD (3647' TVD) ( 2 DEG/100')</b>									
3,800.00	13.55	131.31	3,723.28	-404.03	459.74	14,334,174.67	786,613.95	39° 25' 54.672 N	108° 1' 24.800 W
3,900.00	11.55	131.31	3,820.88	-418.38	476.06	14,334,160.32	786,630.27	39° 25' 54.535 N	108° 1' 24.587 W
4,000.00	9.55	131.31	3,919.19	-430.47	489.82	14,334,148.23	786,644.03	39° 25' 54.421 N	108° 1' 24.406 W
4,100.00	7.55	131.31	4,018.07	-440.28	500.99	14,334,138.42	786,655.20	39° 25' 54.327 N	108° 1' 24.260 W
4,200.00	5.55	131.31	4,117.41	-447.81	509.56	14,334,130.89	786,663.77	39° 25' 54.256 N	108° 1' 24.148 W
4,300.00	3.55	131.31	4,217.09	-453.05	515.52	14,334,125.65	786,669.73	39° 25' 54.206 N	108° 1' 24.069 W
4,400.00	1.55	131.31	4,316.99	-455.99	518.86	14,334,122.71	786,673.07	39° 25' 54.178 N	108° 1' 24.026 W

# Planning Report - Geographic

<b>Database:</b>	EDMDB	<b>Local Co-ordinate Reference:</b>	Well BAT 24C-17-07-95 (111094) - Slot 24C
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5584.00ft (EST. RKB)
<b>Project:</b>	WATSON RANCH PROJECT	<b>MD Reference:</b>	RKB @ 5584.00ft (EST. RKB)
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	BAT 24C-17-07-95 (111094)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BAT 24C-17-07-95		
<b>Design:</b>	ANTERO BAT 24C-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
4,477.57	0.00	0.00	4,394.55	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
END OF DROP @ 4478' MD (4395' TVD)									
4,478.02	0.00	0.00	4,395.00	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
TOP GAS - TOP GAS 24C									
4,500.00	0.00	0.00	4,416.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
4,600.00	0.00	0.00	4,516.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
4,700.00	0.00	0.00	4,616.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
4,800.00	0.00	0.00	4,716.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
4,900.00	0.00	0.00	4,816.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
5,000.00	0.00	0.00	4,916.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
5,100.00	0.00	0.00	5,016.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
5,200.00	0.00	0.00	5,116.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
5,300.00	0.00	0.00	5,216.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
5,400.00	0.00	0.00	5,316.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
5,500.00	0.00	0.00	5,416.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
5,600.00	0.00	0.00	5,516.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
5,700.00	0.00	0.00	5,616.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
5,778.02	0.00	0.00	5,695.00	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
CAMEO									
5,800.00	0.00	0.00	5,716.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
5,900.00	0.00	0.00	5,816.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
6,000.00	0.00	0.00	5,916.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
6,100.00	0.00	0.00	6,016.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
6,200.00	0.00	0.00	6,116.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
6,300.00	0.00	0.00	6,216.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
6,400.00	0.00	0.00	6,316.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
6,478.02	0.00	0.00	6,395.00	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
ROLLINS									
6,500.00	0.00	0.00	6,416.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
6,578.00	0.00	0.00	6,494.98	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
PROPOSED TD @ 6578' MD (6495' TVD)									
6,578.02	0.00	0.00	6,495.00	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W
TD 24C									

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
TOP GAS 24C		360.00	4,395.00	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W	
- hit/miss target										
- Shape										
TD 24C	0.00	0.00	6,495.00	-456.68	519.65	14,334,122.02	786,673.86	39° 25' 54.172 N	108° 1' 24.015 W	
- plan hits target										
- Circle (radius 25.00)										

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	

## Planning Report - Geographic

<b>Database:</b>	EDMDB	<b>Local Co-ordinate Reference:</b>	Well BAT 24C-17-07-95 (111094) - Slot 24C
<b>Company:</b>	ANTERO RESOURCES	<b>TVD Reference:</b>	RKB @ 5584.00ft (EST. RKB)
<b>Project:</b>	WATSON RANCH PROJECT	<b>MD Reference:</b>	RKB @ 5584.00ft (EST. RKB)
<b>Site:</b>	FRONTIER 12	<b>North Reference:</b>	Grid
<b>Well:</b>	BAT 24C-17-07-95 (111094)	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	BAT 24C-17-07-95		
<b>Design:</b>	ANTERO BAT 24C-17-07-95 P01		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,563.81	3,495.00	MESAVERDE		0.00	
4,478.02	4,395.00	TOP GAS		0.00	
5,778.02	5,695.00	CAMEO		0.00	
6,478.02	6,395.00	ROLLINS		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,075.00	1,075.00	0.00	0.00	KOP @ 1075' (2 DEG/100')
1,831.50	1,822.74	-65.55	74.59	END OF BUILD @ 1832' MD (1823' TVD) (15.13 DEG INC)
3,721.07	3,646.81	-391.13	445.06	START DROP @ 3721' MD (3647' TVD) ( 2 DEG/100')
4,477.57	4,394.55	-456.68	519.65	END OF DROP @ 4478' MD (4395' TVD)
6,578.00	6,494.98	-456.68	519.65	PROPOSED TD @ 6578' MD (6495' TVD)