



## **Ursa Operating Company, LLC**

**Rockies Region**

**Yater**

**YATER 43C-18-07-95**

**Wellbore #1**

**Plan: Design #1**

## **Ursa Operating Company LLC Planning Report**

**28 October, 2014**



<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well YATER 43C-18-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	YATER 43C-18-07-95 @ 5532.0usft (EST KB)
<b>Site:</b>	Yater	<b>MD Reference:</b>	YATER 43C-18-07-95 @ 5532.0usft (EST KB)
<b>Well:</b>	YATER 43C-18-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	MasterDB

Project		Rockies Region	
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		Yater									
Site Position:		Northing:		1,593,358.14 usft		Latitude:		39° 26' 7.071 N			
From:		Easting:		2,286,525.77 usft		Longitude:		108° 1' 35.041 W			
Position Uncertainty:		0.0 usft		Slot Radius:		13-3/16 "		Grid Convergence:		-1.59 °	

Well	YATER 43C-18-07-95, SHL LAT: 39.435090319 LONG: -108.026473646					
Well Position	+N-S	0.0 usft	Northing:	1,593,283.27 usft	Latitude:	39° 26' 6.325 N
	+E-W	0.0 usft	Easting:	2,286,502.94 usft	Longitude:	108° 1' 35.305 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,532.0 usft	Ground Level:	5,519.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/23/2014	9.93	65.59	51,878

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	272.56

Survey Tool Program		Date	10/23/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,029.8	Design #1 (Wellbore #1)	MWD	MWD - Standard	

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Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
0.0	0.00	0.00	0.0	-5,532.0	0.0	0.0	0.0	0.00	1,593,283.27	2,286,502.94	
100.0	0.00	0.00	100.0	-5,432.0	0.0	0.0	0.0	0.00	1,593,283.27	2,286,502.94	
200.0	0.00	0.00	200.0	-5,332.0	0.0	0.0	0.0	0.00	1,593,283.27	2,286,502.94	
300.0	0.00	0.00	300.0	-5,232.0	0.0	0.0	0.0	0.00	1,593,283.27	2,286,502.94	
Start Build 3.00											
400.0	3.00	272.56	400.0	-5,132.0	0.1	-2.6	2.6	3.00	1,593,283.46	2,286,500.33	
500.0	6.00	272.56	499.6	-5,032.4	0.5	-10.5	10.5	3.00	1,593,284.03	2,286,492.50	
600.0	9.00	272.56	598.8	-4,933.2	1.0	-23.5	23.5	3.00	1,593,284.97	2,286,479.49	
700.0	12.00	272.56	697.1	-4,834.9	1.9	-41.7	41.7	3.00	1,593,286.29	2,286,461.31	
800.0	15.00	272.56	794.3	-4,737.7	2.9	-65.0	65.1	3.00	1,593,287.98	2,286,438.03	
900.0	18.00	272.56	890.2	-4,641.8	4.2	-93.4	93.5	3.00	1,593,290.03	2,286,409.71	
1,000.0	21.00	272.56	984.4	-4,547.6	5.7	-126.7	126.9	3.00	1,593,292.45	2,286,376.42	
1,100.0	24.00	272.56	1,076.8	-4,455.2	7.4	-165.0	165.1	3.00	1,593,295.22	2,286,338.26	
1,200.0	27.00	272.56	1,167.1	-4,364.9	9.3	-208.0	208.2	3.00	1,593,298.34	2,286,295.32	
1,300.0	30.00	272.56	1,254.9	-4,277.1	11.4	-255.6	255.9	3.00	1,593,301.79	2,286,247.74	
1,319.3	30.58	272.56	1,271.6	-4,260.4	11.9	-265.4	265.6	3.00	1,593,302.49	2,286,238.01	
Start 2433.2 hold at 1319.3 MD											
1,400.0	30.58	272.56	1,341.1	-4,190.9	13.7	-306.4	306.7	0.00	1,593,305.46	2,286,197.08	
1,500.0	30.58	272.56	1,427.2	-4,104.8	16.0	-357.2	357.5	0.00	1,593,309.15	2,286,146.34	
1,600.0	30.58	272.56	1,513.3	-4,018.7	18.2	-408.0	408.4	0.00	1,593,312.83	2,286,095.60	
1,700.0	30.58	272.56	1,599.3	-3,932.7	20.5	-458.8	459.3	0.00	1,593,316.51	2,286,044.86	
1,800.0	30.58	272.56	1,685.4	-3,846.6	22.8	-509.7	510.2	0.00	1,593,320.19	2,285,994.12	
1,816.9	30.58	272.56	1,700.0	-3,832.0	23.1	-518.2	518.8	0.00	1,593,320.82	2,285,985.53	
Surface Casing											
1,900.0	30.58	272.56	1,771.5	-3,760.5	25.0	-560.5	561.0	0.00	1,593,323.88	2,285,943.38	
2,000.0	30.58	272.56	1,857.6	-3,674.4	27.3	-611.3	611.9	0.00	1,593,327.56	2,285,892.64	
2,100.0	30.58	272.56	1,943.7	-3,588.3	29.6	-662.1	662.8	0.00	1,593,331.24	2,285,841.89	
2,200.0	30.58	272.56	2,029.8	-3,502.2	31.8	-712.9	713.7	0.00	1,593,334.92	2,285,791.15	

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<b>Well:</b>	YATER 43C-18-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	MasterDB

Planned Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,300.0	30.58	272.56	2,115.9	-3,416.1	34.1	-763.8	764.5	0.00	1,593,338.60	2,285,740.41
2,400.0	30.58	272.56	2,202.0	-3,330.0	36.4	-814.6	815.4	0.00	1,593,342.29	2,285,689.67
2,500.0	30.58	272.56	2,288.1	-3,243.9	38.6	-865.4	866.3	0.00	1,593,345.97	2,285,638.93
2,600.0	30.58	272.56	2,374.2	-3,157.8	40.9	-916.2	917.2	0.00	1,593,349.65	2,285,588.19
2,700.0	30.58	272.56	2,460.3	-3,071.7	43.2	-967.1	968.0	0.00	1,593,353.33	2,285,537.45
2,800.0	30.58	272.56	2,546.4	-2,985.6	45.5	-1,017.9	1,018.9	0.00	1,593,357.01	2,285,486.71
2,900.0	30.58	272.56	2,632.4	-2,899.6	47.7	-1,068.7	1,069.8	0.00	1,593,360.70	2,285,435.97
3,000.0	30.58	272.56	2,718.5	-2,813.5	50.0	-1,119.5	1,120.6	0.00	1,593,364.38	2,285,385.23
3,100.0	30.58	272.56	2,804.6	-2,727.4	52.3	-1,170.4	1,171.5	0.00	1,593,368.06	2,285,334.49
3,200.0	30.58	272.56	2,890.7	-2,641.3	54.5	-1,221.2	1,222.4	0.00	1,593,371.74	2,285,283.75
3,300.0	30.58	272.56	2,976.8	-2,555.2	56.8	-1,272.0	1,273.3	0.00	1,593,375.43	2,285,233.01
3,400.0	30.58	272.56	3,062.9	-2,469.1	59.1	-1,322.8	1,324.1	0.00	1,593,379.11	2,285,182.26
3,500.0	30.58	272.56	3,149.0	-2,383.0	61.3	-1,373.7	1,375.0	0.00	1,593,382.79	2,285,131.52
3,600.0	30.58	272.56	3,235.1	-2,296.9	63.6	-1,424.5	1,425.9	0.00	1,593,386.47	2,285,080.78
3,700.0	30.58	272.56	3,321.2	-2,210.8	65.9	-1,475.3	1,476.8	0.00	1,593,390.15	2,285,030.04
3,737.0	30.58	272.56	3,353.0	-2,179.0	66.7	-1,494.1	1,495.6	0.00	1,593,391.51	2,285,011.29
<b>Williams Fork</b>										
3,752.5	30.58	272.56	3,366.4	-2,165.6	67.1	-1,502.0	1,503.5	0.00	1,593,392.09	2,285,003.41
<b>Start Drop -3.00</b>										
3,800.0	29.15	272.56	3,407.6	-2,124.4	68.1	-1,525.6	1,527.1	3.00	1,593,393.80	2,284,979.81
3,900.0	26.15	272.56	3,496.1	-2,035.9	70.2	-1,572.0	1,573.5	3.00	1,593,397.16	2,284,933.52
4,000.0	23.15	272.56	3,587.0	-1,945.0	72.1	-1,613.6	1,615.3	3.00	1,593,400.18	2,284,891.92
4,100.0	20.15	272.56	3,679.9	-1,852.1	73.7	-1,650.5	1,652.1	3.00	1,593,402.85	2,284,855.12
4,200.0	17.15	272.56	3,774.7	-1,757.3	75.1	-1,682.5	1,684.1	3.00	1,593,405.16	2,284,823.22
4,300.0	14.15	272.56	3,871.0	-1,661.0	76.3	-1,709.4	1,711.1	3.00	1,593,407.11	2,284,796.31
4,400.0	11.15	272.56	3,968.5	-1,563.5	77.3	-1,731.3	1,733.0	3.00	1,593,408.70	2,284,774.47
4,500.0	8.15	272.56	4,067.1	-1,464.9	78.1	-1,748.0	1,749.8	3.00	1,593,409.91	2,284,757.74

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<b>Site:</b>	Yater	<b>MD Reference:</b>	YATER 43C-18-07-95 @ 5532.0usft (EST KB)
<b>Well:</b>	YATER 43C-18-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
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## Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
4,600.0	5.15	272.56	4,166.4	-1,365.6	78.6	-1,759.6	1,761.4	3.00	1,593,410.75	2,284,746.18
4,700.0	2.15	272.56	4,266.2	-1,265.8	78.9	-1,766.0	1,767.7	3.00	1,593,411.21	2,284,739.83
4,771.8	0.00	0.00	4,338.0	-1,194.0	78.9	-1,767.3	1,769.1	3.00	1,593,411.31	2,284,738.48
<b>Back to Vertical - Start 2258.0 hold at 4771.8 MD - Top of Gas - 43C-18-07-95 TGT</b>										
4,800.0	0.00	0.00	4,366.2	-1,165.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
4,900.0	0.00	0.00	4,466.2	-1,065.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
5,000.0	0.00	0.00	4,566.2	-965.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
5,100.0	0.00	0.00	4,666.2	-865.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
5,200.0	0.00	0.00	4,766.2	-765.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
5,300.0	0.00	0.00	4,866.2	-665.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
5,400.0	0.00	0.00	4,966.2	-565.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
5,500.0	0.00	0.00	5,066.2	-465.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
5,600.0	0.00	0.00	5,166.2	-365.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
5,700.0	0.00	0.00	5,266.2	-265.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
5,800.0	0.00	0.00	5,366.2	-165.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
5,900.0	0.00	0.00	5,466.2	-65.8	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
6,000.0	0.00	0.00	5,566.2	34.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
6,100.0	0.00	0.00	5,666.2	134.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
6,200.0	0.00	0.00	5,766.2	234.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
6,218.8	0.00	0.00	5,785.0	253.0	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
<b>Cameo</b>										
6,300.0	0.00	0.00	5,866.2	334.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
6,400.0	0.00	0.00	5,966.2	434.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
6,500.0	0.00	0.00	6,066.2	534.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
6,600.0	0.00	0.00	6,166.2	634.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
6,700.0	0.00	0.00	6,266.2	734.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
6,729.8	0.00	0.00	6,296.0	764.0	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
<b>Rollins</b>										

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6,800.0	0.00	0.00	6,366.2	834.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
6,900.0	0.00	0.00	6,466.2	934.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
7,000.0	0.00	0.00	6,566.2	1,034.2	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
7,029.8	0.00	0.00	6,596.0	1,064.0	78.9	-1,767.3	1,769.1	0.00	1,593,411.31	2,284,738.48
TD at 7029.8										

## Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,729.8	6,296.0	Rollins		0.00	
3,737.0	3,353.0	Williams Fork		0.00	
4,771.8	4,338.0	Top of Gas		0.00	
6,218.8	5,785.0	Cameo		0.00	

## Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.0	300.0	0.0	0.0	Start Build 3.00
1,319.3	1,271.6	11.9	-265.4	Start 2433.2 hold at 1319.3 MD
1,816.9	1,700.0	23.1	-518.2	Surface Casing
3,752.5	3,366.4	67.1	-1,502.0	Start Drop -3.00
4,771.8	4,338.0	78.9	-1,767.3	Back to Vertical
4,771.8	4,338.0	78.9	-1,767.3	Start 2258.0 hold at 4771.8 MD
7,029.8	6,596.0	78.9	-1,767.3	TD at 7029.8

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



Well Name: YATER 43C-18-07-95  
Surface Location: Yater  
North American Datum 1983, US State Plane 1983, Colorado Central Zone  
Ground Elevation: 5519.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1593283.27 2286502.94 39° 26' 6.325 N 108° 1' 35.305 W  
EST KB YATER 43C-18-07-95 @ 5532.0usft (EST KB)



Azimuths to True North  
Magnetic North: 9.93°  
Magnetic Field  
Strength: 51878.3snT  
Dip Angle: 65.59°  
Date: 10/23/2014  
Model: IGRF2010

Yater  
YATER 43C-18-07-95  
Design #1  
20:27, October 28 2014

#### WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
43C-18-07-95 TGT4338.0		78.9	-1767.3	1593411.31	2284738.48	39° 26' 7.105 N	108° 1' 57.831 W	Rectangle (Sides: L40.0 W100.0)

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	1319.3	30.58	272.56	1271.6	11.9	-265.4	3.00	272.56	265.6	
4	3752.5	30.58	272.56	3366.4	67.1	-1502.0	0.00	0.00	1503.5	
5	4771.8	0.00	0.00	4338.0	78.9	-1767.3	3.00	180.00	1769.1	43C-18-07-95 TGT
6	7029.8	0.00	0.00	6596.0	78.9	-1767.3	0.00	0.00	1769.1	

#### ANNOTATIONS

TVD	MD	Annotation
300.0	300.0	Start Build 3.00
1271.6	1319.3	Start 2433.2 hold at 1319.3 MD
1700.0	1816.9	Surface Casing
3366.4	3752.5	Start Drop -3.00
4338.0	4771.8	Back to Vertical
4338.0	4771.8	Start 2258.0 hold at 4771.8 MD
6596.0	7029.8	TD at 7029.8

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3353.0	3737.0	Williams Fork	0.00	
4338.0	4771.8	Top of Gas	0.00	
5785.0	6218.8	Cameo	0.00	
6296.0	6729.8	Rollins	0.00	

