



## **Ursa Operating Company, LLC**

**Rockies Region**

**Yater**

**YATER 12D-17-07-95**

**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 12D-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	YATER 12D-17-07-95 @ 5532.0usft (EST KB)
<b>Site:</b>	Yater	<b>MD Reference:</b>	YATER 12D-17-07-95 @ 5532.0usft (EST KB)
<b>Well:</b>	YATER 12D-17-07-95	<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	
From:	Lat/Long	Easting:		2,286,525.77 usft	
Position Uncertainty:	0.0 usft	Slot Radius:		13-3/16 "	
		Latitude:		39° 26' 7.071 N	
		Longitude:		108° 1' 35.041 W	
		Grid Convergence:		-1.59 °	

Well	YATER 12D-17-07-95, SHL LAT: 39.435227490 LONG: -108.026477765					
Well Position	+N/-S	0.0 usft	Northing:	1,593,333.24 usft	Latitude:	39° 26' 6.819 N
	+E/-W	0.0 usft	Easting:	2,286,503.16 usft	Longitude:	108° 1' 35.320 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	338.42

Survey Tool Program		Date	10/27/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	6,921.5	Design #1 (Wellbore #1)	MWD	MWD - Standard	

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<b>Well:</b>	YATER 12D-17-07-95	<b>North Reference:</b>	True
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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	1,593,333.24	2,286,503.16	
100.0	0.00	0.00	100.0	-5,432.0	0.0	0.0	0.0	0.00	1,593,333.24	2,286,503.16	
200.0	0.00	0.00	200.0	-5,332.0	0.0	0.0	0.0	0.00	1,593,333.24	2,286,503.16	
300.0	0.00	0.00	300.0	-5,232.0	0.0	0.0	0.0	0.00	1,593,333.24	2,286,503.16	
400.0	0.00	0.00	400.0	-5,132.0	0.0	0.0	0.0	0.00	1,593,333.24	2,286,503.16	
500.0	0.00	0.00	500.0	-5,032.0	0.0	0.0	0.0	0.00	1,593,333.24	2,286,503.16	
600.0	0.00	0.00	600.0	-4,932.0	0.0	0.0	0.0	0.00	1,593,333.24	2,286,503.16	
700.0	0.00	0.00	700.0	-4,832.0	0.0	0.0	0.0	0.00	1,593,333.24	2,286,503.16	
Start Build 3.00											
800.0	3.00	338.42	800.0	-4,732.0	2.4	-1.0	2.6	3.00	1,593,335.70	2,286,502.27	
900.0	6.00	338.42	899.6	-4,632.4	9.7	-3.8	10.5	3.00	1,593,343.08	2,286,499.59	
1,000.0	9.00	338.42	998.8	-4,533.2	21.9	-8.6	23.5	3.00	1,593,355.34	2,286,495.13	
1,100.0	12.00	338.42	1,097.1	-4,434.9	38.8	-15.4	41.7	3.00	1,593,372.47	2,286,488.90	
1,200.0	15.00	338.42	1,194.3	-4,337.7	60.5	-23.9	65.1	3.00	1,593,394.40	2,286,480.92	
1,300.0	18.00	338.42	1,290.2	-4,241.8	86.9	-34.4	93.5	3.00	1,593,421.09	2,286,471.21	
1,400.0	21.00	338.42	1,384.4	-4,147.6	118.0	-46.7	126.9	3.00	1,593,452.46	2,286,459.80	
1,463.6	22.91	338.42	1,443.4	-4,088.6	140.1	-55.4	150.6	3.00	1,593,474.81	2,286,451.67	
Start 2436.3 hold at 1463.6 MD											
1,500.0	22.91	338.42	1,476.9	-4,055.1	153.2	-60.6	164.8	0.00	1,593,488.11	2,286,446.83	
1,600.0	22.91	338.42	1,569.1	-3,962.9	189.4	-74.9	203.7	0.00	1,593,524.70	2,286,433.52	
1,700.0	22.91	338.42	1,661.2	-3,870.8	225.6	-89.3	242.6	0.00	1,593,561.28	2,286,420.22	
1,742.2	22.91	338.42	1,700.0	-3,832.0	240.9	-95.3	259.1	0.00	1,593,576.70	2,286,414.61	
Surface Casing											
1,800.0	22.91	338.42	1,753.3	-3,778.7	261.8	-103.6	281.6	0.00	1,593,597.86	2,286,406.91	
1,900.0	22.91	338.42	1,845.4	-3,686.6	298.0	-117.9	320.5	0.00	1,593,634.44	2,286,393.60	
2,000.0	22.91	338.42	1,937.5	-3,594.5	334.2	-132.2	359.4	0.00	1,593,671.02	2,286,380.30	
2,100.0	22.91	338.42	2,029.6	-3,502.4	370.4	-146.5	398.4	0.00	1,593,707.60	2,286,366.99	
2,200.0	22.91	338.42	2,121.7	-3,410.3	406.6	-160.8	437.3	0.00	1,593,744.18	2,286,353.69	

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<b>Well:</b>	YATER 12D-17-07-95	<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	22.91	338.42	2,213.8	-3,318.2	442.8	-175.2	476.2	0.00	1,593,780.76	2,286,340.38
2,400.0	22.91	338.42	2,306.0	-3,226.0	479.0	-189.5	515.1	0.00	1,593,817.35	2,286,327.07
2,500.0	22.91	338.42	2,398.1	-3,133.9	515.2	-203.8	554.1	0.00	1,593,853.93	2,286,313.77
2,600.0	22.91	338.42	2,490.2	-3,041.8	551.4	-218.1	593.0	0.00	1,593,890.51	2,286,300.46
2,700.0	22.91	338.42	2,582.3	-2,949.7	587.6	-232.4	631.9	0.00	1,593,927.09	2,286,287.15
2,800.0	22.91	338.42	2,674.4	-2,857.6	623.8	-246.8	670.8	0.00	1,593,963.67	2,286,273.85
2,900.0	22.91	338.42	2,766.5	-2,765.5	660.0	-261.1	709.8	0.00	1,594,000.25	2,286,260.54
3,000.0	22.91	338.42	2,858.6	-2,673.4	696.2	-275.4	748.7	0.00	1,594,036.83	2,286,247.23
3,100.0	22.91	338.42	2,950.8	-2,581.2	732.4	-289.7	787.6	0.00	1,594,073.41	2,286,233.93
3,200.0	22.91	338.42	3,042.9	-2,489.1	768.6	-304.0	826.5	0.00	1,594,109.99	2,286,220.62
3,300.0	22.91	338.42	3,135.0	-2,397.0	804.8	-318.4	865.5	0.00	1,594,146.58	2,286,207.31
3,400.0	22.91	338.42	3,227.1	-2,304.9	841.0	-332.7	904.4	0.00	1,594,183.16	2,286,194.01
3,500.0	22.91	338.42	3,319.2	-2,212.8	877.2	-347.0	943.3	0.00	1,594,219.74	2,286,180.70
3,600.0	22.91	338.42	3,411.3	-2,120.7	913.4	-361.3	982.2	0.00	1,594,256.32	2,286,167.40
3,637.7	22.91	338.42	3,446.0	-2,086.0	927.0	-366.7	996.9	0.00	1,594,270.09	2,286,162.39
<b>Williams Fork</b>										
3,700.0	22.91	338.42	3,503.4	-2,028.6	949.6	-375.6	1,021.2	0.00	1,594,292.90	2,286,154.09
3,800.0	22.91	338.42	3,595.5	-1,936.5	985.8	-389.9	1,060.1	0.00	1,594,329.48	2,286,140.78
3,899.9	22.91	338.42	3,687.6	-1,844.4	1,021.9	-404.2	1,099.0	0.00	1,594,366.03	2,286,127.49
<b>Start Drop -3.00</b>										
4,000.0	19.91	338.42	3,780.7	-1,751.3	1,055.9	-417.7	1,135.5	3.00	1,594,400.36	2,286,115.00
4,100.0	16.91	338.42	3,875.6	-1,656.4	1,085.3	-429.3	1,167.1	3.00	1,594,430.03	2,286,104.21
4,200.0	13.91	338.42	3,972.0	-1,560.0	1,110.0	-439.1	1,193.7	3.00	1,594,454.99	2,286,095.13
4,300.0	10.91	338.42	4,069.7	-1,462.3	1,129.9	-447.0	1,215.1	3.00	1,594,475.17	2,286,087.79
4,400.0	7.91	338.42	4,168.3	-1,363.7	1,145.1	-453.0	1,231.5	3.00	1,594,490.53	2,286,082.20
4,500.0	4.91	338.42	4,267.7	-1,264.3	1,155.5	-457.1	1,242.6	3.00	1,594,501.01	2,286,078.39
4,600.0	1.91	338.42	4,367.5	-1,164.5	1,161.0	-459.3	1,248.6	3.00	1,594,506.60	2,286,076.36

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<b>Site:</b>	Yater	<b>MD Reference:</b>	YATER 12D-17-07-95 @ 5532.0usft (EST KB)
<b>Well:</b>	YATER 12D-17-07-95	<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)
4,663.5	0.00	0.00	4,431.0	-1,101.0	1,162.0	-459.7	1,249.6	3.00	1,594,507.59	2,286,076.00
<b>Back to Vertical - Start 2258.0 hold at 4663.5 MD - Top of Gas - 12D-17-07-95 TGT</b>										
4,700.0	0.00	0.00	4,467.5	-1,064.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
4,800.0	0.00	0.00	4,567.5	-964.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
4,900.0	0.00	0.00	4,667.5	-864.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
5,000.0	0.00	0.00	4,767.5	-764.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
5,100.0	0.00	0.00	4,867.5	-664.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
5,200.0	0.00	0.00	4,967.5	-564.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
5,300.0	0.00	0.00	5,067.5	-464.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
5,400.0	0.00	0.00	5,167.5	-364.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
5,500.0	0.00	0.00	5,267.5	-264.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
5,600.0	0.00	0.00	5,367.5	-164.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
5,700.0	0.00	0.00	5,467.5	-64.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
5,800.0	0.00	0.00	5,567.5	35.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
5,900.0	0.00	0.00	5,667.5	135.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
6,000.0	0.00	0.00	5,767.5	235.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
6,100.0	0.00	0.00	5,867.5	335.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
6,110.5	0.00	0.00	5,878.0	346.0	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
<b>Cameo</b>										
6,200.0	0.00	0.00	5,967.5	435.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
6,300.0	0.00	0.00	6,067.5	535.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
6,400.0	0.00	0.00	6,167.5	635.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
6,500.0	0.00	0.00	6,267.5	735.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
6,600.0	0.00	0.00	6,367.5	835.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
6,621.5	0.00	0.00	6,389.0	857.0	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
<b>Rollins</b>										
6,700.0	0.00	0.00	6,467.5	935.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
6,800.0	0.00	0.00	6,567.5	1,035.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00

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6,900.0	0.00	0.00		6,667.5	1,135.5	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
6,921.5	0.00	0.00		6,689.0	1,157.0	1,162.0	-459.7	1,249.6	0.00	1,594,507.59	2,286,076.00
TD at 6921.5											

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,637.7	3,446.0	Williams Fork		0.00		
6,621.5	6,389.0	Rollins		0.00		
4,663.5	4,431.0	Top of Gas		0.00		
6,110.5	5,878.0	Cameo		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
700.0	700.0	0.0	0.0	Start Build 3.00	
1,463.6	1,443.4	140.1	-55.4	Start 2436.3 hold at 1463.6 MD	
1,742.2	1,700.0	240.9	-95.3	Surface Casing	
3,899.9	3,687.6	1,021.9	-404.2	Start Drop -3.00	
4,663.5	4,431.0	1,162.0	-459.7	Back to Vertical	
4,663.5	4,431.0	1,162.0	-459.7	Start 2258.0 hold at 4663.5 MD	
6,921.5	6,689.0	1,162.0	-459.7	TD at 6921.5	

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



Well Name: YATER 12D-17-07-95  
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 1593333.24 2286503.16 39° 26' 6.819 N 108° 1' 35.320 W  
EST KB YATER 12D-17-07-95 @ 5532.0usft (EST KB)



Azimuths to True North  
Magnetic North: 9.93°  
Magnetic Field  
Strength: 51878.4nT  
Dip Angle: 65.59°  
Date: 10/23/2014  
Model: IGRF2010

Yater  
YATER 12D-17-07-95  
Design #1  
9:25, October 28 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
12D-17-07-95 TGT4431.0		1162.0	-459.7	1594507.59	2286076.00	39° 26' 18.304 N	108° 1' 41.179 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	700.0	0.00	0.00	700.0	0.0	0.0	0.00	0.00	0.0	
3	1463.6	22.91	338.42	1443.4	140.1	-55.4	3.00	338.42	150.6	
4	3899.9	22.91	338.42	3687.6	1021.9	-404.2	0.00	0.00	1099.0	
5	4663.5	0.00	0.00	4431.0	1162.0	-459.7	3.00	180.00	1249.6	12D-17-07-95 TGT
6	6921.5	0.00	0.00	6689.0	1162.0	-459.7	0.00	0.00	1249.6	

#### ANNOTATIONS

TVD	MD	Annotation
700.0	700.0	Start Build 3.00
1443.4	1463.6	Start 2436.3 hold at 1463.6 MD
1700.0	1742.2	Surface Casing
3687.6	3899.9	Start Drop -3.00
4431.0	4663.5	Back to Vertical
4431.0	4663.5	Start 2258.0 hold at 4663.5 MD
6689.0	6921.5	TD at 6921.5

#### FORMATION TOP DETAILS

TVDPATH	MDPATH	Formation	DipAngle	DipDir
3446.0	3637.7	Williams Fork	0.00	
4431.0	4663.5	Top of Gas	0.00	
5878.0	6110.5	Cameo	0.00	
6389.0	6621.5	Rollins	0.00	

