



## **Ursa Operating Company, LLC**

**Rockies Region**

**Yater**

**YATER 12B-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 12B-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	YATER 12B-17-07-95 @ 5532.0usft (EST KB)
<b>Site:</b>	Yater	<b>MD Reference:</b>	YATER 12B-17-07-95 @ 5532.0usft (EST KB)
<b>Well:</b>	YATER 12B-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 12B-17-07-95, SHL LAT: 39.435091756 LONG: -108.026394044					
Well Position	+N-S	0.0 usft	Northing:	1,593,283.17 usft	Latitude:	39° 26' 6.330 N
	+E-W	0.0 usft	Easting:	2,286,525.43 usft	Longitude:	108° 1' 35.019 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	345.35

Survey Tool Program		Date	10/27/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,201.7	Design #1 (Wellbore #1)	MWD	MWD - Standard	

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<b>Well:</b>	YATER 12B-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	1,593,283.17	2,286,525.43
100.0	0.00	0.00	100.0	-5,432.0	0.0	0.0	0.0	0.00	1,593,283.17	2,286,525.43
200.0	0.00	0.00	200.0	-5,332.0	0.0	0.0	0.0	0.00	1,593,283.17	2,286,525.43
300.0	0.00	0.00	300.0	-5,232.0	0.0	0.0	0.0	0.00	1,593,283.17	2,286,525.43
<b>Start Build 3.50</b>										
400.0	3.50	345.35	399.9	-5,132.1	3.0	-0.8	3.1	3.50	1,593,286.14	2,286,524.74
500.0	7.00	345.35	499.5	-5,032.5	11.8	-3.1	12.2	3.50	1,593,295.05	2,286,522.67
600.0	10.50	345.35	598.3	-4,933.7	26.5	-6.9	27.4	3.50	1,593,309.87	2,286,519.24
700.0	14.00	345.35	696.0	-4,836.0	47.0	-12.3	48.6	3.50	1,593,330.54	2,286,514.45
800.0	17.50	345.35	792.3	-4,739.7	73.3	-19.2	75.8	3.50	1,593,356.98	2,286,508.32
900.0	21.00	345.35	886.7	-4,645.3	105.2	-27.5	108.7	3.50	1,593,389.09	2,286,500.87
1,000.0	24.50	345.35	978.9	-4,553.1	142.6	-37.3	147.4	3.50	1,593,426.75	2,286,492.14
1,100.0	28.00	345.35	1,068.5	-4,463.5	185.4	-48.4	191.6	3.50	1,593,469.83	2,286,482.15
1,177.1	30.70	345.35	1,135.7	-4,396.3	222.0	-58.0	229.4	3.50	1,593,506.65	2,286,473.62
<b>Start 2889.4 hold at 1177.1 MD</b>										
1,200.0	30.70	345.35	1,155.4	-4,376.6	233.3	-61.0	241.1	0.00	1,593,518.03	2,286,470.98
1,300.0	30.70	345.35	1,241.4	-4,290.6	282.7	-73.9	292.1	0.00	1,593,567.77	2,286,459.45
1,400.0	30.70	345.35	1,327.4	-4,204.6	332.0	-86.8	343.2	0.00	1,593,617.50	2,286,447.92
1,500.0	30.70	345.35	1,413.4	-4,118.6	381.4	-99.7	394.3	0.00	1,593,667.23	2,286,436.39
1,600.0	30.70	345.35	1,499.4	-4,032.6	430.8	-112.6	445.3	0.00	1,593,716.97	2,286,424.86
1,700.0	30.70	345.35	1,585.4	-3,946.6	480.2	-125.5	496.4	0.00	1,593,766.70	2,286,413.33
1,800.0	30.70	345.35	1,671.3	-3,860.7	529.6	-138.4	547.4	0.00	1,593,816.43	2,286,401.80
1,833.3	30.70	345.35	1,700.0	-3,832.0	546.1	-142.7	564.4	0.00	1,593,833.01	2,286,397.96
<b>Surface Casing</b>										
1,900.0	30.70	345.35	1,757.3	-3,774.7	579.0	-151.3	598.5	0.00	1,593,866.17	2,286,390.27
2,000.0	30.70	345.35	1,843.3	-3,688.7	628.4	-164.2	649.5	0.00	1,593,915.90	2,286,378.74
2,100.0	30.70	345.35	1,929.3	-3,602.7	677.8	-177.1	700.6	0.00	1,593,965.64	2,286,367.21
2,200.0	30.70	345.35	2,015.3	-3,516.7	727.2	-190.0	751.6	0.00	1,594,015.37	2,286,355.68

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<b>Well:</b>	YATER 12B-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)
2,300.0	30.70	345.35	2,101.3	-3,430.7	776.6	-202.9	802.7	0.00	1,594,065.10	2,286,344.15
2,400.0	30.70	345.35	2,187.3	-3,344.7	826.0	-215.9	853.7	0.00	1,594,114.84	2,286,332.62
2,500.0	30.70	345.35	2,273.2	-3,258.8	875.4	-228.8	904.8	0.00	1,594,164.57	2,286,321.09
2,600.0	30.70	345.35	2,359.2	-3,172.8	924.8	-241.7	955.8	0.00	1,594,214.30	2,286,309.56
2,700.0	30.70	345.35	2,445.2	-3,086.8	974.2	-254.6	1,006.9	0.00	1,594,264.04	2,286,298.03
2,800.0	30.70	345.35	2,531.2	-3,000.8	1,023.6	-267.5	1,057.9	0.00	1,594,313.77	2,286,286.50
2,900.0	30.70	345.35	2,617.2	-2,914.8	1,073.0	-280.4	1,109.0	0.00	1,594,363.50	2,286,274.97
3,000.0	30.70	345.35	2,703.2	-2,828.8	1,122.3	-293.3	1,160.0	0.00	1,594,413.24	2,286,263.44
3,100.0	30.70	345.35	2,789.2	-2,742.8	1,171.7	-306.2	1,211.1	0.00	1,594,462.97	2,286,251.91
3,200.0	30.70	345.35	2,875.1	-2,656.9	1,221.1	-319.1	1,262.1	0.00	1,594,512.70	2,286,240.38
3,300.0	30.70	345.35	2,961.1	-2,570.9	1,270.5	-332.0	1,313.2	0.00	1,594,562.44	2,286,228.85
3,400.0	30.70	345.35	3,047.1	-2,484.9	1,319.9	-344.9	1,364.3	0.00	1,594,612.17	2,286,217.32
3,500.0	30.70	345.35	3,133.1	-2,398.9	1,369.3	-357.8	1,415.3	0.00	1,594,661.91	2,286,205.79
3,600.0	30.70	345.35	3,219.1	-2,312.9	1,418.7	-370.8	1,466.4	0.00	1,594,711.64	2,286,194.26
3,700.0	30.70	345.35	3,305.1	-2,226.9	1,468.1	-383.7	1,517.4	0.00	1,594,761.37	2,286,182.73
3,800.0	30.70	345.35	3,391.1	-2,140.9	1,517.5	-396.6	1,568.5	0.00	1,594,811.11	2,286,171.20
3,893.0	30.70	345.35	3,471.0	-2,061.0	1,563.4	-408.6	1,615.9	0.00	1,594,857.34	2,286,160.48
<b>Williams Fork</b>										
3,900.0	30.70	345.35	3,477.1	-2,054.9	1,566.9	-409.5	1,619.5	0.00	1,594,860.84	2,286,159.67
4,000.0	30.70	345.35	3,563.0	-1,969.0	1,616.3	-422.4	1,670.6	0.00	1,594,910.57	2,286,148.14
4,066.5	30.70	345.35	3,620.3	-1,911.7	1,649.2	-431.0	1,704.5	0.00	1,594,943.67	2,286,140.47
<b>Start Drop -3.50</b>										
4,100.0	29.53	345.35	3,649.2	-1,882.8	1,665.4	-435.2	1,721.3	3.50	1,594,960.02	2,286,136.68
4,200.0	26.03	345.35	3,737.7	-1,794.3	1,710.5	-447.0	1,767.9	3.50	1,595,005.41	2,286,126.16
4,300.0	22.53	345.35	3,828.8	-1,703.2	1,750.3	-457.4	1,809.0	3.50	1,595,045.46	2,286,116.87
4,400.0	19.03	345.35	3,922.3	-1,609.7	1,784.6	-466.4	1,844.5	3.50	1,595,080.01	2,286,108.86
4,500.0	15.53	345.35	4,017.8	-1,514.2	1,813.3	-473.9	1,874.2	3.50	1,595,108.94	2,286,102.15

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<b>Well:</b>	YATER 12B-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)
4,600.0	12.03	345.35	4,114.9	-1,417.1	1,836.3	-479.9	1,898.0	3.50	1,595,132.14	2,286,096.78
4,700.0	8.53	345.35	4,213.2	-1,318.8	1,853.6	-484.4	1,915.8	3.50	1,595,149.52	2,286,092.75
4,800.0	5.03	345.35	4,312.5	-1,219.5	1,865.0	-487.4	1,927.6	3.50	1,595,161.01	2,286,090.08
4,900.0	1.53	345.35	4,412.3	-1,119.7	1,870.5	-488.8	1,933.4	3.50	1,595,166.58	2,286,088.79
4,943.7	0.00	0.00	4,456.0	-1,076.0	1,871.1	-489.0	1,933.9	3.50	1,595,167.15	2,286,088.66
<b>Back to Vertical - Start 2258.0 hold at 4943.7 MD - Top of Gas - 12B-17-07-95 TGT</b>										
5,000.0	0.00	0.00	4,512.3	-1,019.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
5,100.0	0.00	0.00	4,612.3	-919.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
5,200.0	0.00	0.00	4,712.3	-819.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
5,300.0	0.00	0.00	4,812.3	-719.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
5,400.0	0.00	0.00	4,912.3	-619.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
5,500.0	0.00	0.00	5,012.3	-519.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
5,600.0	0.00	0.00	5,112.3	-419.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
5,700.0	0.00	0.00	5,212.3	-319.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
5,800.0	0.00	0.00	5,312.3	-219.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
5,900.0	0.00	0.00	5,412.3	-119.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
6,000.0	0.00	0.00	5,512.3	-19.7	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
6,100.0	0.00	0.00	5,612.3	80.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
6,200.0	0.00	0.00	5,712.3	180.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
6,300.0	0.00	0.00	5,812.3	280.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
6,390.7	0.00	0.00	5,903.0	371.0	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
<b>Cameo</b>										
6,400.0	0.00	0.00	5,912.3	380.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
6,500.0	0.00	0.00	6,012.3	480.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
6,600.0	0.00	0.00	6,112.3	580.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
6,700.0	0.00	0.00	6,212.3	680.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
6,800.0	0.00	0.00	6,312.3	780.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66

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Planned Survey										
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6,900.0	0.00	0.00	6,412.3	880.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
6,901.7	0.00	0.00	6,414.0	882.0	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
Rollins										
7,000.0	0.00	0.00	6,512.3	980.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
7,100.0	0.00	0.00	6,612.3	1,080.3	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
7,201.7	0.00	0.00	6,714.0	1,182.0	1,871.1	-489.0	1,933.9	0.00	1,595,167.15	2,286,088.66
TD at 7201.7										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,943.7	4,456.0	Top of Gas		0.00		
3,893.0	3,471.0	Williams Fork		0.00		
6,390.7	5,903.0	Cameo		0.00		
6,901.7	6,414.0	Rollins		0.00		

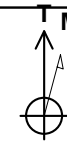
Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.0	300.0	0.0	0.0	Start Build 3.50	
1,177.1	1,135.7	222.0	-58.0	Start 2889.4 hold at 1177.1 MD	
1,833.3	1,700.0	546.1	-142.7	Surface Casing	
4,066.5	3,620.3	1,649.2	-431.0	Start Drop -3.50	
4,943.7	4,456.0	1,871.1	-489.0	Back to Vertical	
4,943.7	4,456.0	1,871.1	-489.0	Start 2258.0 hold at 4943.7 MD	
7,201.7	6,714.0	1,871.1	-489.0	TD at 7201.7	

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<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Design #1	<b>Database:</b>	MasterDB

Checked By: _____	Approved By: _____	Date: _____
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Well Name: YATER 12B-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 1593283.17 2286525.43 39° 26' 6.330 N 108° 1' 35.019 W  
EST KB YATER 12B-17-07-95 @ 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 12B-17-07-95  
Design #1  
9:08, October 28 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
12B-17-07-95 TGT	4456.0	1871.1	-489.0	1595167.15	2286088.66	39° 26' 24.824 N	108° 1' 41.252 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	1177.1	30.70	345.35	1135.7	222.0	-58.0	3.50	345.35	229.4	
4	4066.5	30.70	345.35	3620.3	1649.2	-431.0	0.00	0.00	1704.5	
5	4943.7	0.00	0.00	4456.0	1871.1	-489.0	3.50	180.00	1933.9	12B-17-07-95 TGT
6	7201.7	0.00	0.00	6714.0	1871.1	-489.0	0.00	0.00	1933.9	

#### ANNOTATIONS

TVD	MD	Annotation
300.0	300.0	Start Build 3.50
1135.7	1177.1	Start 2889.4 hold at 1177.1 MD
1700.0	1833.3	Surface Casing
3620.3	4066.5	Start Drop -3.50
4456.0	4943.7	Back to Vertical
4456.0	4943.7	Start 2258.0 hold at 4943.7 MD
6714.0	7201.7	TD at 7201.7

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3471.0	3893.0	Williams Fork	0.00	
4456.0	4943.7	Top of Gas	0.00	
5903.0	6390.7	Cameo	0.00	
6414.0	6901.7	Rollins	0.00	

