



## **Ursa Operating Company, LLC**

**Rockies Region**

**Yater**

**YATER 22C-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 22C-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	YATER 22C-17-07-95 @ 5532.0usft (EST KB)
<b>Site:</b>	Yater	<b>MD Reference:</b>	YATER 22C-17-07-95 @ 5532.0usft (EST KB)
<b>Well:</b>	YATER 22C-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:		Slot Radius:		13-3/16 "	
0.0 usft				Latitude: 39° 26' 7.071 N	
				Longitude: 108° 1' 35.041 W	
				Grid Convergence: -1.59 °	

Well	YATER 22C-17-07-95, SHL LAT: 39.435296075 LONG: -108.026479824					
Well Position	+N/-S	0.0 usft	Northing:	1,593,358.23 usft	Latitude:	39° 26' 7.066 N
	+E/-W	0.0 usft	Easting:	2,286,503.28 usft	Longitude:	108° 1' 35.327 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	32.79

Survey Tool Program		Date	10/27/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,069.9	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	1,593,358.23	2,286,503.28
100.0	0.00	0.00	100.0	-5,432.0	0.0	0.0	0.0	0.00	1,593,358.23	2,286,503.28
200.0	0.00	0.00	200.0	-5,332.0	0.0	0.0	0.0	0.00	1,593,358.23	2,286,503.28
300.0	0.00	0.00	300.0	-5,232.0	0.0	0.0	0.0	0.00	1,593,358.23	2,286,503.28
400.0	0.00	0.00	400.0	-5,132.0	0.0	0.0	0.0	0.00	1,593,358.23	2,286,503.28
455.0	0.00	0.00	455.0	-5,077.0	0.0	0.0	0.0	0.00	1,593,358.23	2,286,503.28
<b>Start Build 3.50</b>										
500.0	1.58	32.79	500.0	-5,032.0	0.5	0.3	0.6	3.50	1,593,358.74	2,286,503.63
600.0	5.08	32.79	599.8	-4,932.2	5.4	3.5	6.4	3.50	1,593,363.52	2,286,506.90
700.0	8.58	32.79	699.1	-4,832.9	15.4	9.9	18.3	3.50	1,593,373.33	2,286,513.61
800.0	12.08	32.79	797.5	-4,734.5	30.4	19.6	36.2	3.50	1,593,388.12	2,286,523.73
900.0	15.58	32.79	894.5	-4,637.5	50.5	32.6	60.1	3.50	1,593,407.84	2,286,537.22
1,000.0	19.08	32.79	990.0	-4,542.0	75.6	48.7	89.9	3.50	1,593,432.41	2,286,554.04
1,100.0	22.58	32.79	1,083.4	-4,448.6	105.4	67.9	125.4	3.50	1,593,461.75	2,286,574.11
1,195.0	25.90	32.79	1,170.1	-4,361.9	138.2	89.1	164.4	3.50	1,593,493.94	2,286,596.14
<b>Start 2876.8 hold at 1195.0 MD</b>										
1,200.0	25.90	32.79	1,174.6	-4,357.4	140.1	90.2	166.6	0.00	1,593,495.73	2,286,597.36
1,300.0	25.90	32.79	1,264.5	-4,267.5	176.8	113.9	210.3	0.00	1,593,531.78	2,286,622.03
1,400.0	25.90	32.79	1,354.5	-4,177.5	213.5	137.5	254.0	0.00	1,593,567.83	2,286,646.70
1,500.0	25.90	32.79	1,444.4	-4,087.6	250.2	161.2	297.7	0.00	1,593,603.88	2,286,671.37
1,600.0	25.90	32.79	1,534.4	-3,997.6	287.0	184.9	341.3	0.00	1,593,639.93	2,286,696.04
1,700.0	25.90	32.79	1,624.3	-3,907.7	323.7	208.5	385.0	0.00	1,593,675.98	2,286,720.71
1,784.1	25.90	32.79	1,700.0	-3,832.0	354.6	228.4	421.8	0.00	1,593,706.31	2,286,741.46
<b>Surface Casing</b>										
1,800.0	25.90	32.79	1,714.3	-3,817.7	360.4	232.2	428.7	0.00	1,593,712.03	2,286,745.37
1,900.0	25.90	32.79	1,804.2	-3,727.8	397.1	255.8	472.4	0.00	1,593,748.09	2,286,770.04
2,000.0	25.90	32.79	1,894.2	-3,637.8	433.8	279.5	516.1	0.00	1,593,784.14	2,286,794.71
2,100.0	25.90	32.79	1,984.1	-3,547.9	470.6	303.1	559.8	0.00	1,593,820.19	2,286,819.38

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<b>Well:</b>	YATER 22C-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)
2,200.0	25.90	32.79	2,074.1	-3,457.9	507.3	326.8	603.4	0.00	1,593,856.24	2,286,844.05
2,300.0	25.90	32.79	2,164.1	-3,367.9	544.0	350.4	647.1	0.00	1,593,892.29	2,286,868.71
2,400.0	25.90	32.79	2,254.0	-3,278.0	580.7	374.1	690.8	0.00	1,593,928.34	2,286,893.38
2,500.0	25.90	32.79	2,344.0	-3,188.0	617.5	397.8	734.5	0.00	1,593,964.39	2,286,918.05
2,600.0	25.90	32.79	2,433.9	-3,098.1	654.2	421.4	778.2	0.00	1,594,000.44	2,286,942.72
2,700.0	25.90	32.79	2,523.9	-3,008.1	690.9	445.1	821.9	0.00	1,594,036.49	2,286,967.39
2,800.0	25.90	32.79	2,613.8	-2,918.2	727.6	468.7	865.5	0.00	1,594,072.54	2,286,992.06
2,900.0	25.90	32.79	2,703.8	-2,828.2	764.4	492.4	909.2	0.00	1,594,108.59	2,287,016.72
3,000.0	25.90	32.79	2,793.7	-2,738.3	801.1	516.0	952.9	0.00	1,594,144.65	2,287,041.39
3,100.0	25.90	32.79	2,883.7	-2,648.3	837.8	539.7	996.6	0.00	1,594,180.70	2,287,066.06
3,200.0	25.90	32.79	2,973.6	-2,558.4	874.5	563.4	1,040.3	0.00	1,594,216.75	2,287,090.73
3,300.0	25.90	32.79	3,063.6	-2,468.4	911.2	587.0	1,083.9	0.00	1,594,252.80	2,287,115.40
3,400.0	25.90	32.79	3,153.6	-2,378.4	948.0	610.7	1,127.6	0.00	1,594,288.85	2,287,140.06
3,500.0	25.90	32.79	3,243.5	-2,288.5	984.7	634.3	1,171.3	0.00	1,594,324.90	2,287,164.73
3,600.0	25.90	32.79	3,333.5	-2,198.5	1,021.4	658.0	1,215.0	0.00	1,594,360.95	2,287,189.40
3,700.0	25.90	32.79	3,423.4	-2,108.6	1,058.1	681.6	1,258.7	0.00	1,594,397.00	2,287,214.07
3,771.8	25.90	32.79	3,488.0	-2,044.0	1,084.5	698.6	1,290.0	0.00	1,594,422.89	2,287,231.78
<b>Williams Fork</b>										
3,800.0	25.90	32.79	3,513.4	-2,018.6	1,094.9	705.3	1,302.4	0.00	1,594,433.05	2,287,238.74
3,900.0	25.90	32.79	3,603.3	-1,928.7	1,131.6	728.9	1,346.0	0.00	1,594,469.10	2,287,263.40
4,000.0	25.90	32.79	3,693.3	-1,838.7	1,168.3	752.6	1,389.7	0.00	1,594,505.15	2,287,288.07
4,071.8	25.90	32.79	3,757.9	-1,774.1	1,194.7	769.6	1,421.1	0.00	1,594,531.05	2,287,305.80
<b>Start Drop -3.50</b>										
4,100.0	24.92	32.79	3,783.3	-1,748.7	1,204.8	776.1	1,433.2	3.50	1,594,541.02	2,287,312.62
4,200.0	21.42	32.79	3,875.3	-1,656.7	1,237.9	797.4	1,472.5	3.50	1,594,573.49	2,287,334.83
4,300.0	17.92	32.79	3,969.4	-1,562.6	1,266.2	815.7	1,506.2	3.50	1,594,601.26	2,287,353.83
4,400.0	14.42	32.79	4,065.4	-1,466.6	1,289.6	830.7	1,534.0	3.50	1,594,624.23	2,287,369.55

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<b>Site:</b>	Yater	<b>MD Reference:</b>	YATER 22C-17-07-95 @ 5532.0usft (EST KB)
<b>Well:</b>	YATER 22C-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)
4,500.0	10.92	32.79	4,163.0	-1,369.0	1,308.0	842.6	1,555.9	3.50	1,594,642.32	2,287,381.93
4,600.0	7.42	32.79	4,261.7	-1,270.3	1,321.4	851.2	1,571.9	3.50	1,594,655.47	2,287,390.93
4,700.0	3.92	32.79	4,361.2	-1,170.8	1,329.7	856.6	1,581.7	3.50	1,594,663.62	2,287,396.50
4,800.0	0.42	32.79	4,461.1	-1,070.9	1,332.9	858.6	1,585.5	3.50	1,594,666.73	2,287,398.64
4,811.9	0.00	0.00	4,473.0	-1,059.0	1,332.9	858.6	1,585.6	3.50	1,594,666.77	2,287,398.66
<b>Back to Vertical - Start 2258.0 hold at 4811.9 MD - Top of Gas - 22C-17-07-95 TGT</b>										
4,900.0	0.00	0.00	4,561.1	-970.9	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
5,000.0	0.00	0.00	4,661.1	-870.9	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
5,100.0	0.00	0.00	4,761.1	-770.9	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
5,200.0	0.00	0.00	4,861.1	-670.9	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
5,300.0	0.00	0.00	4,961.1	-570.9	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
5,400.0	0.00	0.00	5,061.1	-470.9	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
5,500.0	0.00	0.00	5,161.1	-370.9	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
5,600.0	0.00	0.00	5,261.1	-270.9	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
5,700.0	0.00	0.00	5,361.1	-170.9	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
5,800.0	0.00	0.00	5,461.1	-70.9	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
5,900.0	0.00	0.00	5,561.1	29.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
6,000.0	0.00	0.00	5,661.1	129.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
6,100.0	0.00	0.00	5,761.1	229.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
6,200.0	0.00	0.00	5,861.1	329.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
6,258.9	0.00	0.00	5,920.0	388.0	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
<b>Cameo</b>										
6,300.0	0.00	0.00	5,961.1	429.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
6,400.0	0.00	0.00	6,061.1	529.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
6,500.0	0.00	0.00	6,161.1	629.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
6,600.0	0.00	0.00	6,261.1	729.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
6,700.0	0.00	0.00	6,361.1	829.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66

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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)
6,769.9	0.00	0.00	6,431.0	899.0	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
Rollins										
6,800.0	0.00	0.00	6,461.1	929.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
6,900.0	0.00	0.00	6,561.1	1,029.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
7,000.0	0.00	0.00	6,661.1	1,129.1	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
7,069.9	0.00	0.00	6,731.0	1,199.0	1,332.9	858.6	1,585.6	0.00	1,594,666.77	2,287,398.66
TD at 7069.9										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,771.8	3,488.0	Williams Fork		0.00		
4,811.9	4,473.0	Top of Gas		0.00		
6,769.9	6,431.0	Rollins		0.00		
6,258.9	5,920.0	Cameo		0.00		

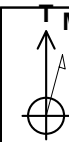
Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
455.0	455.0	0.0	0.0	Start Build 3.50	
1,195.0	1,170.1	138.2	89.1	Start 2876.8 hold at 1195.0 MD	
1,784.1	1,700.0	354.6	228.4	Surface Casing	
4,071.8	3,757.9	1,194.7	769.6	Start Drop -3.50	
4,811.9	4,473.0	1,332.9	858.6	Back to Vertical	
4,811.9	4,473.0	1,332.9	858.6	Start 2258.0 hold at 4811.9 MD	
7,069.9	6,731.0	1,332.9	858.6	TD at 7069.9	

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Checked By: _____	Approved By: _____	Date: _____
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Well Name: YATER 22C-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 1593358.23 2286503.28 39° 26' 7.066 N 108° 1' 35.327 W  
EST KB YATER 22C-17-07-95 @ 5532.0usft (EST KB)



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

Yater  
YATER 22C-17-07-95  
Design #1  
19:35, October 28 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
22C-17-07-95 TGT	4473.0	1332.9	858.6	1594666.77	2287398.66	39° 26' 20.240 N	108° 1' 24.383 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	455.0	0.00	0.00	455.0	0.0	0.0	0.00	0.00	0.0	
3	1195.0	25.90	32.79	1170.1	138.2	89.1	3.50	32.79	164.4	
4	4071.8	25.90	32.79	3757.9	1194.7	769.6	0.00	0.00	1421.1	
5	4811.9	0.00	0.00	4473.0	1332.9	858.6	3.50	180.00	1585.6	22C-17-07-95 TGT
6	7069.9	0.00	0.00	6731.0	1332.9	858.6	0.00	0.00	1585.6	

#### ANNOTATIONS

TVD	MD	Annotation
455.0	455.0	Start Build 3.50
1170.1	1195.0	Start 2876.8 hold at 1195.0 MD
1700.0	1784.1	Surface Casing
3757.9	4071.8	Start Drop -3.50
4473.0	4811.9	Back to Vertical
4473.0	4811.9	Start 2258.0 hold at 4811.9 MD
6731.0	7069.9	TD at 7069.9

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3488.0	3771.8	Williams Fork	0.00	
4473.0	4811.9	Top of Gas	0.00	
5920.0	6258.9	Cameo	0.00	
6431.0	6769.9	Rollins	0.00	

