



Ursa Operating Company, LLC

Rockies Region

Yater

YATER 21D-17-07-95

Wellbore #1

Plan: Design #1

Ursa Operating Company LLC Planning Report

28 October, 2014



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well YATER 21D-17-07-95
Project:	Rockies Region	TVD Reference:	YATER 21D-17-07-95 @ 5532.0usft (EST KB)
Site:	Yater	MD Reference:	YATER 21D-17-07-95 @ 5532.0usft (EST KB)
Well:	YATER 21D-17-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	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 "	
				Latitude: 39° 26' 7.071 N	
				Longitude: 108° 1' 35.041 W	
				Grid Convergence: -1.59 °	

Well		YATER 21D-17-07-95, SHL LAT: 39.435263220 LONG: -108.026399193				
Well Position	+N/-S	0.0 usft	Northing:	1,593,345.63 usft	Latitude:	39° 26' 6.947 N
	+E/-W	0.0 usft	Easting:	2,286,525.71 usft	Longitude:	108° 1' 35.037 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	19.52

Survey Tool Program		Date	10/27/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,492.8	Design #1 (Wellbore #1)	MWD	MWD - Standard	

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Wellbore:	Wellbore #1	Survey Calculation Method:	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)
0.0	0.00	0.00	0.0	-5,532.0	0.0	0.0	0.0	0.00	1,593,345.63	2,286,525.71
100.0	0.00	0.00	100.0	-5,432.0	0.0	0.0	0.0	0.00	1,593,345.63	2,286,525.71
200.0	0.00	0.00	200.0	-5,332.0	0.0	0.0	0.0	0.00	1,593,345.63	2,286,525.71
300.0	0.00	0.00	300.0	-5,232.0	0.0	0.0	0.0	0.00	1,593,345.63	2,286,525.71
Start Build 3.50										
400.0	3.50	19.52	399.9	-5,132.1	2.9	1.0	3.1	3.50	1,593,348.48	2,286,526.81
500.0	7.00	19.52	499.5	-5,032.5	11.5	4.1	12.2	3.50	1,593,357.02	2,286,530.10
600.0	10.50	19.52	598.3	-4,933.7	25.8	9.2	27.4	3.50	1,593,371.20	2,286,535.58
700.0	14.00	19.52	696.0	-4,836.0	45.8	16.2	48.6	3.50	1,593,391.00	2,286,543.22
800.0	17.50	19.52	792.3	-4,739.7	71.4	25.3	75.8	3.50	1,593,416.31	2,286,553.00
900.0	21.00	19.52	886.7	-4,645.3	102.5	36.3	108.7	3.50	1,593,447.07	2,286,564.87
1,000.0	24.50	19.52	978.9	-4,553.1	138.9	49.2	147.4	3.50	1,593,483.14	2,286,578.79
1,100.0	28.00	19.52	1,068.5	-4,463.5	180.6	64.0	191.6	3.50	1,593,524.39	2,286,594.72
1,200.0	31.50	19.52	1,155.3	-4,376.7	227.4	80.6	241.2	3.50	1,593,570.68	2,286,612.59
1,291.3	34.70	19.52	1,231.8	-4,300.2	274.4	97.2	291.1	3.50	1,593,617.20	2,286,630.55
Start 3328.1 hold at 1291.3 MD										
1,300.0	34.70	19.52	1,239.0	-4,293.0	279.0	98.9	296.0	0.00	1,593,621.80	2,286,632.32
1,400.0	34.70	19.52	1,321.2	-4,210.8	332.7	117.9	353.0	0.00	1,593,674.90	2,286,652.82
1,500.0	34.70	19.52	1,403.4	-4,128.6	386.3	136.9	409.9	0.00	1,593,728.01	2,286,673.32
1,600.0	34.70	19.52	1,485.6	-4,046.4	440.0	155.9	466.8	0.00	1,593,781.11	2,286,693.82
1,700.0	34.70	19.52	1,567.8	-3,964.2	493.6	175.0	523.7	0.00	1,593,834.22	2,286,714.32
1,800.0	34.70	19.52	1,650.1	-3,881.9	547.3	194.0	580.6	0.00	1,593,887.32	2,286,734.82
1,860.7	34.70	19.52	1,700.0	-3,832.0	579.9	205.5	615.2	0.00	1,593,919.57	2,286,747.28
Surface Casing										
1,900.0	34.70	19.52	1,732.3	-3,799.7	600.9	213.0	637.6	0.00	1,593,940.42	2,286,755.32
2,000.0	34.70	19.52	1,814.5	-3,717.5	654.6	232.0	694.5	0.00	1,593,993.53	2,286,775.82
2,100.0	34.70	19.52	1,896.7	-3,635.3	708.3	251.0	751.4	0.00	1,594,046.63	2,286,796.32
2,200.0	34.70	19.52	1,978.9	-3,553.1	761.9	270.0	808.3	0.00	1,594,099.73	2,286,816.83

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Well:	YATER 21D-17-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	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	34.70	19.52	2,061.1	-3,470.9	815.6	289.0	865.3	0.00	1,594,152.84	2,286,837.33
2,400.0	34.70	19.52	2,143.4	-3,388.6	869.2	308.1	922.2	0.00	1,594,205.94	2,286,857.83
2,500.0	34.70	19.52	2,225.6	-3,306.4	922.9	327.1	979.1	0.00	1,594,259.04	2,286,878.33
2,600.0	34.70	19.52	2,307.8	-3,224.2	976.5	346.1	1,036.0	0.00	1,594,312.15	2,286,898.83
2,700.0	34.70	19.52	2,390.0	-3,142.0	1,030.2	365.1	1,093.0	0.00	1,594,365.25	2,286,919.33
2,800.0	34.70	19.52	2,472.2	-3,059.8	1,083.8	384.1	1,149.9	0.00	1,594,418.35	2,286,939.83
2,900.0	34.70	19.52	2,554.5	-2,977.5	1,137.5	403.1	1,206.8	0.00	1,594,471.46	2,286,960.33
3,000.0	34.70	19.52	2,636.7	-2,895.3	1,191.1	422.2	1,263.7	0.00	1,594,524.56	2,286,980.83
3,100.0	34.70	19.52	2,718.9	-2,813.1	1,244.8	441.2	1,320.6	0.00	1,594,577.66	2,287,001.33
3,200.0	34.70	19.52	2,801.1	-2,730.9	1,298.4	460.2	1,377.6	0.00	1,594,630.77	2,287,021.83
3,300.0	34.70	19.52	2,883.3	-2,648.7	1,352.1	479.2	1,434.5	0.00	1,594,683.87	2,287,042.33
3,400.0	34.70	19.52	2,965.5	-2,566.5	1,405.7	498.2	1,491.4	0.00	1,594,736.97	2,287,062.83
3,500.0	34.70	19.52	3,047.8	-2,484.2	1,459.4	517.2	1,548.3	0.00	1,594,790.08	2,287,083.33
3,600.0	34.70	19.52	3,130.0	-2,402.0	1,513.0	536.3	1,605.3	0.00	1,594,843.18	2,287,103.83
3,700.0	34.70	19.52	3,212.2	-2,319.8	1,566.7	555.3	1,662.2	0.00	1,594,896.28	2,287,124.33
3,800.0	34.70	19.52	3,294.4	-2,237.6	1,620.4	574.3	1,719.1	0.00	1,594,949.39	2,287,144.83
3,900.0	34.70	19.52	3,376.6	-2,155.4	1,674.0	593.3	1,776.0	0.00	1,595,002.49	2,287,165.33
4,000.0	34.70	19.52	3,458.9	-2,073.1	1,727.7	612.3	1,833.0	0.00	1,595,055.59	2,287,185.83
4,097.5	34.70	19.52	3,539.0	-1,993.0	1,780.0	630.9	1,888.4	0.00	1,595,107.36	2,287,205.81
Williams Fork										
4,100.0	34.70	19.52	3,541.1	-1,990.9	1,781.3	631.3	1,889.9	0.00	1,595,108.70	2,287,206.33
4,200.0	34.70	19.52	3,623.3	-1,908.7	1,835.0	650.3	1,946.8	0.00	1,595,161.80	2,287,226.83
4,300.0	34.70	19.52	3,705.5	-1,826.5	1,888.6	669.4	2,003.7	0.00	1,595,214.90	2,287,247.33
4,400.0	34.70	19.52	3,787.7	-1,744.3	1,942.3	688.4	2,060.6	0.00	1,595,268.01	2,287,267.83
4,500.0	34.70	19.52	3,869.9	-1,662.1	1,995.9	707.4	2,117.6	0.00	1,595,321.11	2,287,288.33
4,600.0	34.70	19.52	3,952.2	-1,579.8	2,049.6	726.4	2,174.5	0.00	1,595,374.21	2,287,308.83

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	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)
4,619.5	34.70	19.52	3,968.2	-1,563.8	2,060.0	730.1	2,185.6	0.00	1,595,384.55	2,287,312.82
Start Drop -3.50										
4,700.0	31.88	19.52	4,035.5	-1,496.5	2,101.7	744.9	2,229.8	3.50	1,595,425.78	2,287,328.74
4,800.0	28.38	19.52	4,122.0	-1,410.0	2,149.0	761.6	2,280.0	3.50	1,595,472.60	2,287,346.81
4,900.0	24.88	19.52	4,211.3	-1,320.7	2,191.2	776.6	2,324.8	3.50	1,595,514.40	2,287,362.95
5,000.0	21.38	19.52	4,303.3	-1,228.7	2,228.2	789.7	2,364.0	3.50	1,595,551.04	2,287,377.09
5,100.0	17.88	19.52	4,397.5	-1,134.5	2,259.9	800.9	2,397.6	3.50	1,595,582.37	2,287,389.19
5,200.0	14.38	19.52	4,493.5	-1,038.5	2,286.1	810.2	2,425.4	3.50	1,595,608.28	2,287,399.19
5,231.4	13.28	19.52	4,524.0	-1,008.0	2,293.1	812.7	2,432.9	3.50	1,595,615.29	2,287,401.89
Top of Gas										
5,240.6	12.96	19.52	4,532.9	-999.1	2,295.1	813.4	2,435.0	3.50	1,595,617.22	2,287,402.64
21D-17-07-95 TGT										
5,300.0	10.88	19.52	4,591.1	-940.9	2,306.7	817.5	2,447.3	3.50	1,595,628.67	2,287,407.06
5,400.0	7.38	19.52	4,689.8	-842.2	2,321.6	822.8	2,463.1	3.50	1,595,643.47	2,287,412.77
5,500.0	3.88	19.52	4,789.3	-742.7	2,330.9	826.1	2,472.9	3.50	1,595,652.62	2,287,416.31
5,600.0	0.38	19.52	4,889.2	-642.8	2,334.4	827.3	2,476.6	3.50	1,595,656.08	2,287,417.64
5,610.8	0.00	0.00	4,900.0	-632.0	2,334.4	827.4	2,476.7	3.50	1,595,656.11	2,287,417.66
Back to Vertical - Start 1882.0 hold at 5610.8 MD										
5,700.0	0.00	0.00	4,989.2	-542.8	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
5,800.0	0.00	0.00	5,089.2	-442.8	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
5,900.0	0.00	0.00	5,189.2	-342.8	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
6,000.0	0.00	0.00	5,289.2	-242.8	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
6,100.0	0.00	0.00	5,389.2	-142.8	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
6,200.0	0.00	0.00	5,489.2	-42.8	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
6,300.0	0.00	0.00	5,589.2	57.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
6,400.0	0.00	0.00	5,689.2	157.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
6,500.0	0.00	0.00	5,789.2	257.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
6,600.0	0.00	0.00	5,889.2	357.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66

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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)
6,681.8	0.00	0.00		5,971.0	439.0	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
Cameo											
6,700.0	0.00	0.00		5,989.2	457.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
6,800.0	0.00	0.00		6,089.2	557.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
6,900.0	0.00	0.00		6,189.2	657.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
7,000.0	0.00	0.00		6,289.2	757.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
7,100.0	0.00	0.00		6,389.2	857.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
7,192.8	0.00	0.00		6,482.0	950.0	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
Rollins											
7,200.0	0.00	0.00		6,489.2	957.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
7,300.0	0.00	0.00		6,589.2	1,057.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
7,400.0	0.00	0.00		6,689.2	1,157.2	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
7,492.8	0.00	0.00		6,782.0	1,250.0	2,334.4	827.4	2,476.7	0.00	1,595,656.11	2,287,417.66
TD at 7492.8											

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,231.4	4,524.0	Top of Gas		0.00		
6,681.8	5,971.0	Cameo		0.00		
7,192.8	6,482.0	Rollins		0.00		
4,097.5	3,539.0	Williams Fork		0.00		

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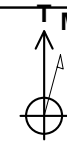
Plan Annotations

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 3.50
1,291.3	1,231.8	274.4	97.2	Start 3328.1 hold at 1291.3 MD
1,860.7	1,700.0	579.9	205.5	Surface Casing
4,619.5	3,968.2	2,060.0	730.1	Start Drop -3.50
5,610.8	4,900.0	2,334.4	827.4	Back to Vertical
5,610.8	4,900.0	2,334.4	827.4	Start 1882.0 hold at 5610.8 MD
7,492.8	6,782.0	2,334.4	827.4	TD at 7492.8

Checked By: _____ Approved By: _____ Date: _____



Well Name: YATER 21D-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 1593345.63 2286525.71 39° 26' 30.020 N 108° 1' 35.037 W
EST KB YATER 21D-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 21D-17-07-95
Design #1
10:42, October 28 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
21D-17-07-95 TGT4524.0		2334.4	827.4	1595656.11	2287417.66	39° 26' 30.020 N	108° 1' 24.491 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	1291.3	34.70	19.52	1231.8	274.4	97.2	3.50	19.52	291.1	
4	4619.5	34.70	19.52	3968.2	2060.0	730.1	0.00	0.00	2185.6	
5	5610.8	0.00	0.00	4900.0	2334.4	827.4	3.50	180.00	2476.7	
6	7492.8	0.00	0.00	6782.0	2334.4	827.4	0.00	0.00	2476.7	

ANNOTATIONS

TVD	MD	Annotation
300.0	300.0	Start Build 3.50
1231.8	1291.3	Start 3328.1 hold at 1291.3 MD
1700.0	1860.7	Surface Casing
3968.2	4619.5	Start Drop -3.50
4900.0	5610.8	Back to Vertical
4900.0	5610.8	Start 1882.0 hold at 5610.8 MD
6782.0	7492.8	TD at 7492.8

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3539.0	4097.5	Williams Fork	0.00	
4524.0	5231.4	Top of Gas	0.00	
5971.0	6681.8	Cameo	0.00	
6482.0	7192.8	Rollins	0.00	

