



Ursa Operating Company, LLC

Rockies Region

Yater

YATER 12C-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 12C-17-07-95
Project:	Rockies Region	TVD Reference:	YATER 12C-17-07-95 @ 5532.0usft (EST KB)
Site:	Yater	MD Reference:	YATER 12C-17-07-95 @ 5532.0usft (EST KB)
Well:	YATER 12C-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:	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 12C-17-07-95, SHL LAT: 39.435261783 LONG: -108.026478795					
Well Position	+N/-S	0.0 usft	Northing:	1,593,345.74 usft	Latitude:	39° 26' 6.942 N
	+E/-W	0.0 usft	Easting:	2,286,503.22 usft	Longitude:	108° 1' 35.324 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	342.65

Survey Tool Program		Date	10/27/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,030.9	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well YATER 12C-17-07-95
Project:	Rockies Region	TVD Reference:	YATER 12C-17-07-95 @ 5532.0usft (EST KB)
Site:	Yater	MD Reference:	YATER 12C-17-07-95 @ 5532.0usft (EST KB)
Well:	YATER 12C-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)
0.0	0.00	0.00	0.0	-5,532.0	0.0	0.0	0.0	0.00	1,593,345.74	2,286,503.22
100.0	0.00	0.00	100.0	-5,432.0	0.0	0.0	0.0	0.00	1,593,345.74	2,286,503.22
200.0	0.00	0.00	200.0	-5,332.0	0.0	0.0	0.0	0.00	1,593,345.74	2,286,503.22
300.0	0.00	0.00	300.0	-5,232.0	0.0	0.0	0.0	0.00	1,593,345.74	2,286,503.22
400.0	0.00	0.00	400.0	-5,132.0	0.0	0.0	0.0	0.00	1,593,345.74	2,286,503.22
500.0	0.00	0.00	500.0	-5,032.0	0.0	0.0	0.0	0.00	1,593,345.74	2,286,503.22
Start Build 3.50										
600.0	3.50	342.65	599.9	-4,932.1	2.9	-0.9	3.1	3.50	1,593,348.68	2,286,502.39
700.0	7.00	342.65	699.5	-4,832.5	11.6	-3.6	12.2	3.50	1,593,357.48	2,286,499.91
800.0	10.50	342.65	798.3	-4,733.7	26.2	-8.2	27.4	3.50	1,593,372.12	2,286,495.78
900.0	14.00	342.65	896.0	-4,636.0	46.4	-14.5	48.6	3.50	1,593,392.54	2,286,490.02
1,000.0	17.50	342.65	992.3	-4,539.7	72.3	-22.6	75.8	3.50	1,593,418.66	2,286,482.65
1,100.0	21.00	342.65	1,086.7	-4,445.3	103.8	-32.4	108.7	3.50	1,593,450.38	2,286,473.69
1,200.0	24.50	342.65	1,178.9	-4,353.1	140.7	-44.0	147.4	3.50	1,593,487.59	2,286,463.19
1,240.7	25.92	342.65	1,215.7	-4,316.3	157.2	-49.1	164.7	3.50	1,593,504.28	2,286,458.49
Start 2791.6 hold at 1240.7 MD										
1,300.0	25.92	342.65	1,269.0	-4,263.0	182.0	-56.9	190.7	0.00	1,593,529.23	2,286,451.45
1,400.0	25.92	342.65	1,359.0	-4,173.0	223.7	-69.9	234.4	0.00	1,593,571.31	2,286,439.57
1,500.0	25.92	342.65	1,448.9	-4,083.1	265.4	-82.9	278.1	0.00	1,593,613.38	2,286,427.70
1,600.0	25.92	342.65	1,538.8	-3,993.2	307.2	-96.0	321.8	0.00	1,593,655.46	2,286,415.83
1,700.0	25.92	342.65	1,628.8	-3,903.2	348.9	-109.0	365.5	0.00	1,593,697.53	2,286,403.96
1,779.2	25.92	342.65	1,700.0	-3,832.0	381.9	-119.3	400.2	0.00	1,593,730.86	2,286,394.55
Surface Casing										
1,800.0	25.92	342.65	1,718.7	-3,813.3	390.6	-122.0	409.2	0.00	1,593,739.61	2,286,392.08
1,900.0	25.92	342.65	1,808.6	-3,723.4	432.4	-135.1	453.0	0.00	1,593,781.68	2,286,380.21
2,000.0	25.92	342.65	1,898.6	-3,633.4	474.1	-148.1	496.7	0.00	1,593,823.76	2,286,368.34
2,100.0	25.92	342.65	1,988.5	-3,543.5	515.8	-161.2	540.4	0.00	1,593,865.83	2,286,356.47
2,200.0	25.92	342.65	2,078.5	-3,453.5	557.5	-174.2	584.1	0.00	1,593,907.91	2,286,344.59

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well YATER 12C-17-07-95
Project:	Rockies Region	TVD Reference:	YATER 12C-17-07-95 @ 5532.0usft (EST KB)
Site:	Yater	MD Reference:	YATER 12C-17-07-95 @ 5532.0usft (EST KB)
Well:	YATER 12C-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	25.92	342.65	2,168.4	-3,363.6	599.3	-187.2	627.8	0.00	1,593,949.98	2,286,332.72
2,400.0	25.92	342.65	2,258.3	-3,273.7	641.0	-200.3	671.6	0.00	1,593,992.06	2,286,320.85
2,500.0	25.92	342.65	2,348.3	-3,183.7	682.7	-213.3	715.3	0.00	1,594,034.13	2,286,308.98
2,600.0	25.92	342.65	2,438.2	-3,093.8	724.5	-226.3	759.0	0.00	1,594,076.21	2,286,297.10
2,700.0	25.92	342.65	2,528.1	-3,003.9	766.2	-239.4	802.7	0.00	1,594,118.29	2,286,285.23
2,800.0	25.92	342.65	2,618.1	-2,913.9	807.9	-252.4	846.4	0.00	1,594,160.36	2,286,273.36
2,900.0	25.92	342.65	2,708.0	-2,824.0	849.6	-265.5	890.1	0.00	1,594,202.44	2,286,261.49
3,000.0	25.92	342.65	2,798.0	-2,734.0	891.4	-278.5	933.9	0.00	1,594,244.51	2,286,249.61
3,100.0	25.92	342.65	2,887.9	-2,644.1	933.1	-291.5	977.6	0.00	1,594,286.59	2,286,237.74
3,200.0	25.92	342.65	2,977.8	-2,554.2	974.8	-304.6	1,021.3	0.00	1,594,328.66	2,286,225.87
3,300.0	25.92	342.65	3,067.8	-2,464.2	1,016.6	-317.6	1,065.0	0.00	1,594,370.74	2,286,214.00
3,400.0	25.92	342.65	3,157.7	-2,374.3	1,058.3	-330.7	1,108.7	0.00	1,594,412.81	2,286,202.13
3,500.0	25.92	342.65	3,247.6	-2,284.4	1,100.0	-343.7	1,152.5	0.00	1,594,454.89	2,286,190.25
3,600.0	25.92	342.65	3,337.6	-2,194.4	1,141.7	-356.7	1,196.2	0.00	1,594,496.96	2,286,178.38
3,700.0	25.92	342.65	3,427.5	-2,104.5	1,183.5	-369.8	1,239.9	0.00	1,594,539.04	2,286,166.51
3,732.8	25.92	342.65	3,457.0	-2,075.0	1,197.2	-374.0	1,254.2	0.00	1,594,552.83	2,286,162.62
Williams Fork										
3,800.0	25.92	342.65	3,517.4	-2,014.6	1,225.2	-382.8	1,283.6	0.00	1,594,581.11	2,286,154.64
3,900.0	25.92	342.65	3,607.4	-1,924.6	1,266.9	-395.8	1,327.3	0.00	1,594,623.19	2,286,142.76
4,000.0	25.92	342.65	3,697.3	-1,834.7	1,308.7	-408.9	1,371.1	0.00	1,594,665.26	2,286,130.89
4,032.2	25.92	342.65	3,726.3	-1,805.7	1,322.1	-413.1	1,385.1	0.00	1,594,678.83	2,286,127.06
Start Drop -3.50										
4,100.0	23.55	342.65	3,787.9	-1,744.1	1,349.2	-421.5	1,413.5	3.50	1,594,706.12	2,286,119.36
4,200.0	20.05	342.65	3,880.7	-1,651.3	1,384.6	-432.6	1,450.6	3.50	1,594,741.86	2,286,109.28
4,300.0	16.55	342.65	3,975.6	-1,556.4	1,414.6	-442.0	1,482.0	3.50	1,594,772.08	2,286,100.75
4,400.0	13.05	342.65	4,072.3	-1,459.7	1,439.0	-449.6	1,507.6	3.50	1,594,796.66	2,286,093.81
4,500.0	9.55	342.65	4,170.3	-1,361.7	1,457.7	-455.4	1,527.2	3.50	1,594,815.52	2,286,088.49

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well YATER 12C-17-07-95
Project:	Rockies Region	TVD Reference:	YATER 12C-17-07-95 @ 5532.0usft (EST KB)
Site:	Yater	MD Reference:	YATER 12C-17-07-95 @ 5532.0usft (EST KB)
Well:	YATER 12C-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)
4,600.0	6.05	342.65	4,269.4	-1,262.6	1,470.6	-459.5	1,540.7	3.50	1,594,828.59	2,286,084.81
4,700.0	2.55	342.65	4,369.1	-1,162.9	1,477.8	-461.7	1,548.3	3.50	1,594,835.81	2,286,082.77
4,772.9	0.00	0.00	4,442.0	-1,090.0	1,479.4	-462.2	1,549.9	3.50	1,594,837.37	2,286,082.33
Back to Vertical - Start 2258.0 hold at 4772.9 MD - Top of Gas - 12C-17-07-95 TGT										
4,800.0	0.00	0.00	4,469.1	-1,062.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
4,900.0	0.00	0.00	4,569.1	-962.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
5,000.0	0.00	0.00	4,669.1	-862.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
5,100.0	0.00	0.00	4,769.1	-762.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
5,200.0	0.00	0.00	4,869.1	-662.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
5,300.0	0.00	0.00	4,969.1	-562.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
5,400.0	0.00	0.00	5,069.1	-462.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
5,500.0	0.00	0.00	5,169.1	-362.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
5,600.0	0.00	0.00	5,269.1	-262.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
5,700.0	0.00	0.00	5,369.1	-162.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
5,800.0	0.00	0.00	5,469.1	-62.9	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
5,900.0	0.00	0.00	5,569.1	37.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
6,000.0	0.00	0.00	5,669.1	137.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
6,100.0	0.00	0.00	5,769.1	237.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
6,200.0	0.00	0.00	5,869.1	337.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
6,219.9	0.00	0.00	5,889.0	357.0	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
Cameo										
6,300.0	0.00	0.00	5,969.1	437.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
6,400.0	0.00	0.00	6,069.1	537.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
6,500.0	0.00	0.00	6,169.1	637.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
6,600.0	0.00	0.00	6,269.1	737.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
6,700.0	0.00	0.00	6,369.1	837.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
6,730.9	0.00	0.00	6,400.0	868.0	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
Rollins										

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well YATER 12C-17-07-95
Project:	Rockies Region	TVD Reference:	YATER 12C-17-07-95 @ 5532.0usft (EST KB)
Site:	Yater	MD Reference:	YATER 12C-17-07-95 @ 5532.0usft (EST KB)
Well:	YATER 12C-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)
6,800.0	0.00	0.00	6,469.1	937.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
6,900.0	0.00	0.00	6,569.1	1,037.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
7,000.0	0.00	0.00	6,669.1	1,137.1	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
7,030.9	0.00	0.00	6,700.0	1,168.0	1,479.4	-462.2	1,549.9	0.00	1,594,837.37	2,286,082.33
TD at 7030.9										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,732.8	3,457.0	Williams Fork		0.00		
6,219.9	5,889.0	Cameo		0.00		
4,772.9	4,442.0	Top of Gas		0.00		
6,730.9	6,400.0	Rollins		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
500.0	500.0	0.0	0.0	Start Build 3.50	
1,240.7	1,215.7	157.2	-49.1	Start 2791.6 hold at 1240.7 MD	
1,779.2	1,700.0	381.9	-119.3	Surface Casing	
4,032.2	3,726.3	1,322.1	-413.1	Start Drop -3.50	
4,772.9	4,442.0	1,479.4	-462.2	Back to Vertical	
4,772.9	4,442.0	1,479.4	-462.2	Start 2258.0 hold at 4772.9 MD	
7,030.9	6,700.0	1,479.4	-462.2	TD at 7030.9	

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------



Well Name: YATER 12C-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 1593345.74 2286503.22 39° 26' 6.942 N 108° 1' 35.324 W
EST KB YATER 12C-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 12C-17-07-95
Design #1
9:15, October 28 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
12C-17-07-95 TGT4442.0		1479.4	-462.2	1594837.37	2286082.33	39° 26' 21.564 N	108° 1' 41.215 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	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	
3	1240.7	25.92	342.65	1215.7	157.2	-49.1	3.50	342.65	164.7	
4	4032.2	25.92	342.65	3726.3	1322.1	-413.1	0.00	0.00	1385.1	
5	4772.9	0.00	0.00	4442.0	1479.4	-462.2	3.50	180.00	1549.9	12C-17-07-95 TGT
6	7030.9	0.00	0.00	6700.0	1479.4	-462.2	0.00	0.00	1549.9	

ANNOTATIONS

TVD	MD	Annotation
500.0	500.0	Start Build 3.50
1215.7	1240.7	Start 2791.6 hold at 1240.7 MD
1700.0	1779.2	Surface Casing
3726.3	4032.2	Start Drop -3.50
4442.0	4772.9	Back to Vertical
4442.0	4772.9	Start 2258.0 hold at 4772.9 MD
6700.0	7030.9	TD at 7030.9

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3457.0	3732.8	Williams Fork	0.00	
4442.0	4772.9	Top of Gas	0.00	
5889.0	6219.9	Cameo	0.00	
6400.0	6730.9	Rollins	0.00	

