



Ursa Operating Company, LLC

Rockies Region

Yater

YATER 22B-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 22B-17-07-95
Project:	Rockies Region	TVD Reference:	YATER 22B-17-07-95 @ 5532.0usft (EST KB)
Site:	Yater	MD Reference:	YATER 22B-17-07-95 @ 5532.0usft (EST KB)
Well:	YATER 22B-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 22B-17-07-95, SHL LAT: 39.435126049 LONG: -108.026395074				
Well Position	+N/-S	0.0 usft	Northing:	1,593,295.66 usft	Latitude:	39° 26' 6.454 N
	+E/-W	0.0 usft	Easting:	2,286,525.48 usft	Longitude:	108° 1' 35.022 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	25.75

Survey Tool Program		Date	10/27/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,237.8	Design #1 (Wellbore #1)	MWD	MWD - Standard	

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Well:	YATER 22B-17-07-95	North Reference:	True
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	1,593,295.66	2,286,525.48
100.0	0.00	0.00	100.0	-5,432.0	0.0	0.0	0.0	0.00	1,593,295.66	2,286,525.48
200.0	0.00	0.00	200.0	-5,332.0	0.0	0.0	0.0	0.00	1,593,295.66	2,286,525.48
300.0	0.00	0.00	300.0	-5,232.0	0.0	0.0	0.0	0.00	1,593,295.66	2,286,525.48
Start Build 3.00										
400.0	3.00	25.75	400.0	-5,132.0	2.4	1.1	2.6	3.00	1,593,297.99	2,286,526.69
500.0	6.00	25.75	499.6	-5,032.4	9.4	4.5	10.5	3.00	1,593,304.95	2,286,530.29
600.0	9.00	25.75	598.8	-4,933.2	21.2	10.2	23.5	3.00	1,593,316.55	2,286,536.28
700.0	12.00	25.75	697.1	-4,834.9	37.6	18.1	41.7	3.00	1,593,332.73	2,286,544.65
800.0	15.00	25.75	794.3	-4,737.7	58.6	28.3	65.1	3.00	1,593,353.47	2,286,555.37
900.0	18.00	25.75	890.2	-4,641.8	84.2	40.6	93.5	3.00	1,593,378.69	2,286,568.42
1,000.0	21.00	25.75	984.4	-4,547.6	114.3	55.1	126.9	3.00	1,593,408.34	2,286,583.75
1,100.0	24.00	25.75	1,076.8	-4,455.2	148.7	71.7	165.1	3.00	1,593,442.33	2,286,601.32
1,200.0	27.00	25.75	1,167.1	-4,364.9	187.5	90.4	208.2	3.00	1,593,480.57	2,286,621.10
1,300.0	30.00	25.75	1,254.9	-4,277.1	230.5	111.2	255.9	3.00	1,593,522.95	2,286,643.01
1,353.5	31.60	25.75	1,300.9	-4,231.1	255.1	123.1	283.3	3.00	1,593,547.27	2,286,655.59
Start 2572.9 hold at 1353.5 MD										
1,400.0	31.60	25.75	1,340.5	-4,191.5	277.1	133.6	307.6	0.00	1,593,568.93	2,286,666.79
1,500.0	31.60	25.75	1,425.7	-4,106.3	324.3	156.4	360.0	0.00	1,593,615.48	2,286,690.86
1,600.0	31.60	25.75	1,510.8	-4,021.2	371.5	179.2	412.4	0.00	1,593,662.03	2,286,714.93
1,700.0	31.60	25.75	1,596.0	-3,936.0	418.7	201.9	464.9	0.00	1,593,708.58	2,286,739.00
1,800.0	31.60	25.75	1,681.2	-3,850.8	465.9	224.7	517.3	0.00	1,593,755.13	2,286,763.07
1,822.1	31.60	25.75	1,700.0	-3,832.0	476.3	229.8	528.8	0.00	1,593,765.42	2,286,768.39
Surface Casing										
1,900.0	31.60	25.75	1,766.3	-3,765.7	513.1	247.5	569.7	0.00	1,593,801.68	2,286,787.14
2,000.0	31.60	25.75	1,851.5	-3,680.5	560.3	270.2	622.1	0.00	1,593,848.23	2,286,811.21
2,100.0	31.60	25.75	1,936.7	-3,595.3	607.5	293.0	674.5	0.00	1,593,894.78	2,286,835.28
2,200.0	31.60	25.75	2,021.8	-3,510.2	654.7	315.8	726.9	0.00	1,593,941.33	2,286,859.35

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Well:	YATER 22B-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	31.60	25.75	2,107.0	-3,425.0	701.9	338.6	779.3	0.00	1,593,987.88	2,286,883.42
2,400.0	31.60	25.75	2,192.2	-3,339.8	749.1	361.3	831.7	0.00	1,594,034.43	2,286,907.49
2,500.0	31.60	25.75	2,277.3	-3,254.7	796.3	384.1	884.1	0.00	1,594,080.98	2,286,931.56
2,600.0	31.60	25.75	2,362.5	-3,169.5	843.5	406.9	936.5	0.00	1,594,127.53	2,286,955.63
2,700.0	31.60	25.75	2,447.7	-3,084.3	890.7	429.6	988.9	0.00	1,594,174.08	2,286,979.70
2,800.0	31.60	25.75	2,532.8	-2,999.2	937.9	452.4	1,041.3	0.00	1,594,220.63	2,287,003.77
2,900.0	31.60	25.75	2,618.0	-2,914.0	985.1	475.2	1,093.7	0.00	1,594,267.18	2,287,027.84
3,000.0	31.60	25.75	2,703.2	-2,828.8	1,032.3	497.9	1,146.1	0.00	1,594,313.73	2,287,051.91
3,100.0	31.60	25.75	2,788.4	-2,743.6	1,079.5	520.7	1,198.5	0.00	1,594,360.28	2,287,075.98
3,200.0	31.60	25.75	2,873.5	-2,658.5	1,126.7	543.5	1,250.9	0.00	1,594,406.83	2,287,100.05
3,300.0	31.60	25.75	2,958.7	-2,573.3	1,173.9	566.2	1,303.3	0.00	1,594,453.38	2,287,124.12
3,400.0	31.60	25.75	3,043.9	-2,488.1	1,221.1	589.0	1,355.7	0.00	1,594,499.93	2,287,148.19
3,500.0	31.60	25.75	3,129.0	-2,403.0	1,268.3	611.8	1,408.1	0.00	1,594,546.48	2,287,172.27
3,600.0	31.60	25.75	3,214.2	-2,317.8	1,315.5	634.5	1,460.5	0.00	1,594,593.03	2,287,196.34
3,700.0	31.60	25.75	3,299.4	-2,232.6	1,362.7	657.3	1,513.0	0.00	1,594,639.58	2,287,220.41
3,800.0	31.60	25.75	3,384.5	-2,147.5	1,409.9	680.1	1,565.4	0.00	1,594,686.13	2,287,244.48
3,900.0	31.60	25.75	3,469.7	-2,062.3	1,457.1	702.8	1,617.8	0.00	1,594,732.68	2,287,268.55
3,926.3	31.60	25.75	3,492.1	-2,039.9	1,469.6	708.8	1,631.6	0.00	1,594,744.94	2,287,274.89
Start Drop -3.00										
3,944.9	31.05	25.75	3,508.0	-2,024.0	1,478.3	713.0	1,641.2	3.00	1,594,753.52	2,287,279.32
Williams Fork										
4,000.0	29.39	25.75	3,555.6	-1,976.4	1,503.2	725.1	1,669.0	3.00	1,594,778.15	2,287,292.06
4,100.0	26.39	25.75	3,644.0	-1,888.0	1,545.4	745.4	1,715.7	3.00	1,594,819.70	2,287,313.54
4,200.0	23.39	25.75	3,734.7	-1,797.3	1,583.3	763.7	1,757.8	3.00	1,594,857.09	2,287,332.88
4,300.0	20.39	25.75	3,827.4	-1,704.6	1,616.9	779.9	1,795.1	3.00	1,594,890.21	2,287,350.00
4,400.0	17.39	25.75	3,922.0	-1,610.0	1,646.0	793.9	1,827.5	3.00	1,594,918.97	2,287,364.88
4,500.0	14.39	25.75	4,018.2	-1,513.8	1,670.7	805.8	1,854.9	3.00	1,594,943.29	2,287,377.45

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Site:	Yater	MD Reference:	YATER 22B-17-07-95 @ 5532.0usft (EST KB)
Well:	YATER 22B-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	11.39	25.75	4,115.7	-1,416.3	1,690.8	815.5	1,877.2	3.00	1,594,963.11	2,287,387.70
4,700.0	8.39	25.75	4,214.2	-1,317.8	1,706.3	823.0	1,894.4	3.00	1,594,978.38	2,287,395.59
4,800.0	5.39	25.75	4,313.4	-1,218.6	1,717.1	828.2	1,906.4	3.00	1,594,989.04	2,287,401.11
4,900.0	2.39	25.75	4,413.2	-1,118.8	1,723.2	831.1	1,913.2	3.00	1,594,995.07	2,287,404.23
4,979.8	0.00	0.00	4,493.0	-1,039.0	1,724.7	831.9	1,914.8	3.00	1,594,996.55	2,287,404.99
Back to Vertical - Start 2258.0 hold at 4979.8 MD - Top of Gas - 22B-17-07-95 TGT										
5,000.0	0.00	0.00	4,513.2	-1,018.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
5,100.0	0.00	0.00	4,613.2	-918.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
5,200.0	0.00	0.00	4,713.2	-818.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
5,300.0	0.00	0.00	4,813.2	-718.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
5,400.0	0.00	0.00	4,913.2	-618.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
5,500.0	0.00	0.00	5,013.2	-518.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
5,600.0	0.00	0.00	5,113.2	-418.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
5,700.0	0.00	0.00	5,213.2	-318.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
5,800.0	0.00	0.00	5,313.2	-218.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
5,900.0	0.00	0.00	5,413.2	-118.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
6,000.0	0.00	0.00	5,513.2	-18.8	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
6,100.0	0.00	0.00	5,613.2	81.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
6,200.0	0.00	0.00	5,713.2	181.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
6,300.0	0.00	0.00	5,813.2	281.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
6,400.0	0.00	0.00	5,913.2	381.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
6,426.8	0.00	0.00	5,940.0	408.0	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
Cameo										
6,500.0	0.00	0.00	6,013.2	481.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
6,600.0	0.00	0.00	6,113.2	581.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
6,700.0	0.00	0.00	6,213.2	681.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
6,800.0	0.00	0.00	6,313.2	781.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99

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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)
6,900.0	0.00	0.00	6,413.2	881.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
6,937.8	0.00	0.00	6,451.0	919.0	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
Rollins										
7,000.0	0.00	0.00	6,513.2	981.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
7,100.0	0.00	0.00	6,613.2	1,081.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
7,200.0	0.00	0.00	6,713.2	1,181.2	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
7,237.8	0.00	0.00	6,751.0	1,219.0	1,724.7	831.9	1,914.8	0.00	1,594,996.55	2,287,404.99
TD at 7237.8										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,426.8	5,940.0	Cameo		0.00		
4,979.8	4,493.0	Top of Gas		0.00		
3,944.9	3,508.0	Williams Fork		0.00		
6,937.8	6,451.0	Rollins		0.00		

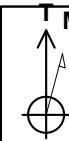
Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.0	300.0	0.0	0.0	Start Build 3.00
1,353.5	1,300.9	255.1	123.1	Start 2572.9 hold at 1353.5 MD
1,822.1	1,700.0	476.3	229.8	Surface Casing
3,926.3	3,492.1	1,469.6	708.8	Start Drop -3.00
4,979.8	4,493.0	1,724.7	831.9	Back to Vertical
4,979.8	4,493.0	1,724.7	831.9	Start 2258.0 hold at 4979.8 MD
7,237.8	6,751.0	1,724.7	831.9	TD at 7237.8

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Well:	YATER 22B-17-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	MasterDB

Checked By: _____	Approved By: _____	Date: _____
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Well Name: YATER 22B-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 1593295.66 2286525.48 39° 26' 6.454 N 108° 1' 35.022 W
EST KB YATER 22B-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 22B-17-07-95
Design #1
10:54, October 28 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
22B-17-07-95 TGT4493.0		1724.7	831.9	1594996.55	2287404.99	39° 26' 23.500 N	108° 1' 24.419 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	1353.5	31.60	25.75	1300.9	255.1	123.1	3.00	25.75	283.3	
4	3926.3	31.60	25.75	3492.1	1469.6	708.8	0.00	0.00	1631.6	
5	4979.8	0.00	0.00	4493.0	1724.7	831.9	3.00	180.00	1914.8	22B-17-07-95 TGT
6	7237.8	0.00	0.00	6751.0	1724.7	831.9	0.00	0.00	1914.8	

ANNOTATIONS

TVD	MD	Annotation
300.0	300.0	Start Build 3.00
1300.9	1353.5	Start 2572.9 hold at 1353.5 MD
1700.0	1822.1	Surface Casing
3492.1	3926.3	Start Drop -3.00
4493.0	4979.8	Back to Vertical
4493.0	4979.8	Start 2258.0 hold at 4979.8 MD
6751.0	7237.8	TD at 7237.8

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3508.0	3944.9	Williams Fork	0.00	
4493.0	4979.8	Top of Gas	0.00	
5940.0	6426.8	Cameo	0.00	
6451.0	6937.8	Rollins	0.00	

