



Ursa Operating Company, LLC

Rockies Region

Yater

YATER 42D-18-07-95

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 42D-18-07-95
Project:	Rockies Region	TVD Reference:	YATER 42D-18-07-95 @ 5532.0usft (EST KB)
Site:	Yater	MD Reference:	YATER 42D-18-07-95 @ 5532.0usft (EST KB)
Well:	YATER 42D-18-07-95	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 42D-18-07-95, SHL LAT: 39.435193197 LONG: -108.026476735				
Well Position	+N/-S	0.0 usft	Northing:	1,593,320.75 usft	Latitude:	39° 26' 6.695 N
	+E/-W	0.0 usft	Easting:	2,286,503.11 usft	Longitude:	108° 1' 35.316 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	300.10

Survey Tool Program		Date	10/23/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,195.3	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	1,593,320.75	2,286,503.11
100.0	0.00	0.00	100.0	-5,432.0	0.0	0.0	0.0	0.00	1,593,320.75	2,286,503.11
200.0	0.00	0.00	200.0	-5,332.0	0.0	0.0	0.0	0.00	1,593,320.75	2,286,503.11
300.0	0.00	0.00	300.0	-5,232.0	0.0	0.0	0.0	0.00	1,593,320.75	2,286,503.11
Start Build 3.50										
400.0	3.50	300.10	399.9	-5,132.1	1.5	-2.6	3.1	3.50	1,593,322.35	2,286,500.51
500.0	7.00	300.10	499.5	-5,032.5	6.1	-10.6	12.2	3.50	1,593,327.16	2,286,492.73
600.0	10.50	300.10	598.3	-4,933.7	13.7	-23.7	27.4	3.50	1,593,335.15	2,286,479.78
700.0	14.00	300.10	696.0	-4,836.0	24.4	-42.1	48.6	3.50	1,593,346.30	2,286,461.73
800.0	17.50	300.10	792.3	-4,739.7	38.0	-65.5	75.8	3.50	1,593,360.56	2,286,438.64
900.0	21.00	300.10	886.7	-4,645.3	54.5	-94.1	108.7	3.50	1,593,377.88	2,286,410.60
1,000.0	24.50	300.10	978.9	-4,553.1	73.9	-127.5	147.4	3.50	1,593,398.19	2,286,377.70
1,100.0	28.00	300.10	1,068.5	-4,463.5	96.1	-165.8	191.6	3.50	1,593,421.43	2,286,340.07
1,200.0	31.50	300.10	1,155.3	-4,376.7	121.0	-208.7	241.2	3.50	1,593,447.50	2,286,297.86
1,263.4	33.72	300.10	1,208.7	-4,323.3	138.1	-238.2	275.4	3.50	1,593,465.44	2,286,268.81
Start 2710.5 hold at 1263.4 MD										
1,300.0	33.72	300.10	1,239.2	-4,292.8	148.3	-255.8	295.7	0.00	1,593,476.12	2,286,251.51
1,400.0	33.72	300.10	1,322.4	-4,209.6	176.2	-303.8	351.2	0.00	1,593,505.29	2,286,204.28
1,500.0	33.72	300.10	1,405.5	-4,126.5	204.0	-351.9	406.7	0.00	1,593,534.46	2,286,157.05
1,600.0	33.72	300.10	1,488.7	-4,043.3	231.8	-399.9	462.2	0.00	1,593,563.63	2,286,109.82
1,700.0	33.72	300.10	1,571.9	-3,960.1	259.7	-447.9	517.8	0.00	1,593,592.79	2,286,062.59
1,800.0	33.72	300.10	1,655.1	-3,876.9	287.5	-495.9	573.3	0.00	1,593,621.96	2,286,015.36
1,854.0	33.72	300.10	1,700.0	-3,832.0	302.6	-521.9	603.2	0.00	1,593,637.71	2,285,989.85
Surface Casing										
1,900.0	33.72	300.10	1,738.3	-3,793.7	315.4	-544.0	628.8	0.00	1,593,651.13	2,285,968.13
2,000.0	33.72	300.10	1,821.4	-3,710.6	343.2	-592.0	684.3	0.00	1,593,680.29	2,285,920.90
2,100.0	33.72	300.10	1,904.6	-3,627.4	371.1	-640.0	739.8	0.00	1,593,709.46	2,285,873.67
2,200.0	33.72	300.10	1,987.8	-3,544.2	398.9	-688.0	795.3	0.00	1,593,738.63	2,285,826.44

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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)
2,300.0	33.72	300.10	2,071.0	-3,461.0	426.7	-736.0	850.8	0.00	1,593,767.79	2,285,779.21
2,400.0	33.72	300.10	2,154.2	-3,377.8	454.6	-784.1	906.3	0.00	1,593,796.96	2,285,731.98
2,500.0	33.72	300.10	2,237.3	-3,294.7	482.4	-832.1	961.8	0.00	1,593,826.13	2,285,684.75
2,600.0	33.72	300.10	2,320.5	-3,211.5	510.3	-880.1	1,017.3	0.00	1,593,855.29	2,285,637.52
2,700.0	33.72	300.10	2,403.7	-3,128.3	538.1	-928.1	1,072.9	0.00	1,593,884.46	2,285,590.29
2,800.0	33.72	300.10	2,486.9	-3,045.1	566.0	-976.2	1,128.4	0.00	1,593,913.63	2,285,543.06
2,900.0	33.72	300.10	2,570.0	-2,962.0	593.8	-1,024.2	1,183.9	0.00	1,593,942.80	2,285,495.83
3,000.0	33.72	300.10	2,653.2	-2,878.8	621.6	-1,072.2	1,239.4	0.00	1,593,971.96	2,285,448.60
3,100.0	33.72	300.10	2,736.4	-2,795.6	649.5	-1,120.2	1,294.9	0.00	1,594,001.13	2,285,401.37
3,200.0	33.72	300.10	2,819.6	-2,712.4	677.3	-1,168.3	1,350.4	0.00	1,594,030.30	2,285,354.14
3,300.0	33.72	300.10	2,902.8	-2,629.2	705.2	-1,216.3	1,405.9	0.00	1,594,059.46	2,285,306.91
3,400.0	33.72	300.10	2,985.9	-2,546.1	733.0	-1,264.3	1,461.4	0.00	1,594,088.63	2,285,259.68
3,500.0	33.72	300.10	3,069.1	-2,462.9	760.9	-1,312.3	1,516.9	0.00	1,594,117.80	2,285,212.45
3,600.0	33.72	300.10	3,152.3	-2,379.7	788.7	-1,360.3	1,572.4	0.00	1,594,146.96	2,285,165.22
3,700.0	33.72	300.10	3,235.5	-2,296.5	816.5	-1,408.4	1,627.9	0.00	1,594,176.13	2,285,118.00
3,800.0	33.72	300.10	3,318.6	-2,213.4	844.4	-1,456.4	1,683.5	0.00	1,594,205.30	2,285,070.77
3,882.2	33.72	300.10	3,387.0	-2,145.0	867.3	-1,495.8	1,729.1	0.00	1,594,229.27	2,285,031.95
Williams Fork										
3,900.0	33.72	300.10	3,401.8	-2,130.2	872.2	-1,504.4	1,739.0	0.00	1,594,234.47	2,285,023.54
3,973.9	33.72	300.10	3,463.3	-2,068.7	892.8	-1,539.9	1,780.0	0.00	1,594,256.02	2,284,988.64
Start Drop -3.50										
4,000.0	32.80	300.10	3,485.1	-2,046.9	900.0	-1,552.3	1,794.3	3.50	1,594,263.54	2,284,976.45
4,100.0	29.30	300.10	3,570.8	-1,961.2	925.8	-1,596.9	1,845.9	3.50	1,594,290.64	2,284,932.57
4,200.0	25.80	300.10	3,659.4	-1,872.6	949.0	-1,636.9	1,892.1	3.50	1,594,314.94	2,284,893.22
4,300.0	22.30	300.10	3,750.7	-1,781.3	969.5	-1,672.2	1,932.9	3.50	1,594,336.36	2,284,858.55
4,400.0	18.80	300.10	3,844.3	-1,687.7	987.1	-1,702.5	1,968.0	3.50	1,594,354.80	2,284,828.68
4,500.0	15.30	300.10	3,939.9	-1,592.1	1,001.8	-1,727.9	1,997.3	3.50	1,594,370.21	2,284,803.73

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Site:	Yater	MD Reference:	YATER 42D-18-07-95 @ 5532.0usft (EST KB)
Well:	YATER 42D-18-07-95	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	11.80	300.10	4,037.1	-1,494.9	1,013.6	-1,748.2	2,020.7	3.50	1,594,382.52	2,284,783.79
4,700.0	8.30	300.10	4,135.6	-1,396.4	1,022.3	-1,763.3	2,038.2	3.50	1,594,391.69	2,284,768.94
4,800.0	4.80	300.10	4,234.9	-1,297.1	1,028.0	-1,773.1	2,049.6	3.50	1,594,397.69	2,284,759.23
4,900.0	1.30	300.10	4,334.8	-1,197.2	1,030.7	-1,777.8	2,054.9	3.50	1,594,400.49	2,284,754.70
4,937.3	0.00	0.00	4,372.0	-1,160.0	1,030.9	-1,778.1	2,055.4	3.50	1,594,400.71	2,284,754.34
Back to Vertical - Start 2258.0 hold at 4937.3 MD - Top of Gas - 42D-18-07-95 TGT										
5,000.0	0.00	0.00	4,434.7	-1,097.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
5,100.0	0.00	0.00	4,534.7	-997.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
5,200.0	0.00	0.00	4,634.7	-897.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
5,300.0	0.00	0.00	4,734.7	-797.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
5,400.0	0.00	0.00	4,834.7	-697.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
5,500.0	0.00	0.00	4,934.7	-597.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
5,600.0	0.00	0.00	5,034.7	-497.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
5,700.0	0.00	0.00	5,134.7	-397.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
5,800.0	0.00	0.00	5,234.7	-297.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
5,900.0	0.00	0.00	5,334.7	-197.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
6,000.0	0.00	0.00	5,434.7	-97.3	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
6,100.0	0.00	0.00	5,534.7	2.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
6,200.0	0.00	0.00	5,634.7	102.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
6,300.0	0.00	0.00	5,734.7	202.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
6,384.3	0.00	0.00	5,819.0	287.0	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
Cameo										
6,400.0	0.00	0.00	5,834.7	302.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
6,500.0	0.00	0.00	5,934.7	402.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
6,600.0	0.00	0.00	6,034.7	502.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
6,700.0	0.00	0.00	6,134.7	602.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
6,800.0	0.00	0.00	6,234.7	702.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34

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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)
6,895.3	0.00	0.00		6,330.0	798.0	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
Rollins											
6,900.0	0.00	0.00		6,334.7	802.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
7,000.0	0.00	0.00		6,434.7	902.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
7,100.0	0.00	0.00		6,534.7	1,002.7	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
7,195.3	0.00	0.00		6,630.0	1,098.0	1,030.9	-1,778.1	2,055.4	0.00	1,594,400.71	2,284,754.34
TD at 7195.3											

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,895.3	6,330.0	Rollins		0.00		
3,882.2	3,387.0	Williams Fork		0.00		
6,384.3	5,819.0	Cameo		0.00		
4,937.3	4,372.0	Top of Gas		0.00		

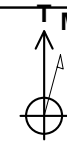
Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.0	300.0	0.0	0.0	Start Build 3.50	
1,263.4	1,208.7	138.1	-238.2	Start 2710.5 hold at 1263.4 MD	
1,854.0	1,700.0	302.6	-521.9	Surface Casing	
3,973.9	3,463.3	892.8	-1,539.9	Start Drop -3.50	
4,937.3	4,372.0	1,030.9	-1,778.1	Back to Vertical	
4,937.3	4,372.0	1,030.9	-1,778.1	Start 2258.0 hold at 4937.3 MD	
7,195.3	6,630.0	1,030.9	-1,778.1	TD at 7195.3	

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Checked By: _____	Approved By: _____	Date: _____
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Well Name: YATER 42D-18-07-95
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 1593320.75 2286503.11 39° 26' 16.884 N 108° 1' 57.981 W
EST KB YATER 42D-18-07-95 @ 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 42D-18-07-95
Design #1
19:53, October 28 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
42D-18-07-95 TGT4372.0		1030.9	-1778.1	1594400.71	2284754.34	39° 26' 16.884 N	108° 1' 57.981 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	1263.4	33.72	300.10	1208.7	138.1	-238.2	3.50	300.10	275.4	
4	3973.9	33.72	300.10	3463.3	892.8	-1539.9	0.00	0.00	1780.0	
5	4937.3	0.00	0.00	4372.0	1030.9	-1778.1	3.50	180.00	2055.4	42D-18-07-95 TGT
6	7195.3	0.00	0.00	6630.0	1030.9	-1778.1	0.00	0.00	2055.4	

ANNOTATIONS

TVD	MD	Annotation
300.0	300.0	Start Build 3.50
1208.7	1263.4	Start 2710.5 hold at 1263.4 MD
1700.0	1854.0	Surface Casing
3463.3	3973.9	Start Drop -3.50
4372.0	4937.3	Back to Vertical
4372.0	4937.3	Start 2258.0 hold at 4937.3 MD
6630.0	7195.3	TD at 7195.3

FORMATION TOP DETAILS

TVDPPath	MDPath	Formation	DipAngle	DipDir
3387.0	3882.2	Williams Fork	0.00	
4372.0	4937.3	Top of Gas	0.00	
5819.0	6384.3	Cameo	0.00	
6330.0	6895.3	Rollins	0.00	

