



## **Ursa Operating Company, LLC**

**Rockies Region**

**Watson Ranch B**

**WATSON RANCH B 33A-17-07-95**

**Wellbore #1**

**Plan: Design #1**

## **Ursa Operating Company LLC Planning Report**

**20 November, 2014**



<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well WATSON RANCH B 33A-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Site:</b>	Watson Ranch B	<b>MD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Well:</b>	WATSON RANCH B 33A-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		Watson Ranch B			
Site Position:		Northing:		Latitude:	
From:	Lat/Long	Easting:		Longitude:	
Position Uncertainty:		Slot Radius:		Grid Convergence:	
	0.0 usft	13-3/16 "		-1.59 °	
		1,592,643.01 usft		39° 26' 0.219 N	
		2,287,301.12 usft		108° 1' 24.909 W	

Well		WATSON RANCH B 33A-17-07-95, SHL LAT: 39.433394646 LONG: -108.023541582				
Well Position	+N/-S	0.0 usft	Northing:	1,592,642.87 usft	Latitude:	39° 26' 0.221 N
	+E/-W	0.0 usft	Easting:	2,287,313.61 usft	Longitude:	108° 1' 24.750 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,598.0 usft	Ground Level:	5,585.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/19/2014	9.92	65.59	51,870

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	46.02

Survey Tool Program		Date	11/20/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,289.7	Design #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well WATSON RANCH B 33A-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Site:</b>	Watson Ranch B	<b>MD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Well:</b>	WATSON RANCH B 33A-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)
0.0	0.00	0.00	0.0	-5,598.0	0.0	0.0	0.0	0.00	1,592,642.87	2,287,313.61
100.0	0.00	0.00	100.0	-5,498.0	0.0	0.0	0.0	0.00	1,592,642.87	2,287,313.61
200.0	0.00	0.00	200.0	-5,398.0	0.0	0.0	0.0	0.00	1,592,642.87	2,287,313.61
300.0	0.00	0.00	300.0	-5,298.0	0.0	0.0	0.0	0.00	1,592,642.87	2,287,313.61
<b>Start Build 3.00</b>										
400.0	3.00	46.02	400.0	-5,198.0	1.8	1.9	2.6	3.00	1,592,644.63	2,287,315.54
500.0	6.00	46.02	499.6	-5,098.4	7.3	7.5	10.5	3.00	1,592,649.92	2,287,321.34
600.0	9.00	46.02	598.8	-4,999.2	16.3	16.9	23.5	3.00	1,592,658.72	2,287,330.98
700.0	12.00	46.02	697.1	-4,900.9	29.0	30.0	41.7	3.00	1,592,671.00	2,287,344.44
800.0	15.00	46.02	794.3	-4,803.7	45.2	46.8	65.1	3.00	1,592,686.74	2,287,361.68
900.0	18.00	46.02	890.2	-4,707.8	64.9	67.3	93.5	3.00	1,592,705.88	2,287,382.65
1,000.0	21.00	46.02	984.4	-4,613.6	88.1	91.3	126.9	3.00	1,592,728.38	2,287,407.30
1,100.0	24.00	46.02	1,076.8	-4,521.2	114.7	118.8	165.1	3.00	1,592,754.18	2,287,435.57
1,200.0	27.00	46.02	1,167.1	-4,430.9	144.5	149.8	208.2	3.00	1,592,783.20	2,287,467.36
1,300.0	30.00	46.02	1,254.9	-4,343.1	177.7	184.1	255.9	3.00	1,592,815.36	2,287,502.60
1,335.6	31.07	46.02	1,285.6	-4,312.4	190.2	197.2	274.0	3.00	1,592,827.57	2,287,515.97
<b>Start 2660.4 hold at 1335.6 MD</b>										
1,400.0	31.07	46.02	1,340.8	-4,257.2	213.3	221.1	307.2	0.00	1,592,849.96	2,287,540.51
1,500.0	31.07	46.02	1,426.4	-4,171.6	249.1	258.2	358.8	0.00	1,592,884.75	2,287,578.62
1,600.0	31.07	46.02	1,512.1	-4,085.9	285.0	295.3	410.4	0.00	1,592,919.54	2,287,616.74
1,700.0	31.07	46.02	1,597.7	-4,000.3	320.8	332.5	462.0	0.00	1,592,954.33	2,287,654.86
1,800.0	31.07	46.02	1,683.4	-3,914.6	356.7	369.6	513.6	0.00	1,592,989.12	2,287,692.98
1,819.4	31.07	46.02	1,700.0	-3,898.0	363.6	376.8	523.6	0.00	1,592,995.87	2,287,700.38
<b>Surface Casing</b>										
1,900.0	31.07	46.02	1,769.0	-3,829.0	392.5	406.7	565.2	0.00	1,593,023.91	2,287,731.10
2,000.0	31.07	46.02	1,854.7	-3,743.3	428.3	443.9	616.8	0.00	1,593,058.70	2,287,769.21
2,100.0	31.07	46.02	1,940.3	-3,657.7	464.2	481.0	668.4	0.00	1,593,093.49	2,287,807.33
2,200.0	31.07	46.02	2,026.0	-3,572.0	500.0	518.2	720.1	0.00	1,593,128.28	2,287,845.45

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well WATSON RANCH B 33A-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Site:</b>	Watson Ranch B	<b>MD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Well:</b>	WATSON RANCH B 33A-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)
2,300.0	31.07	46.02	2,111.6	-3,486.4	535.8	555.3	771.7	0.00	1,593,163.07	2,287,883.57
2,400.0	31.07	46.02	2,197.3	-3,400.7	571.7	592.4	823.3	0.00	1,593,197.86	2,287,921.68
2,500.0	31.07	46.02	2,283.0	-3,315.0	607.5	629.6	874.9	0.00	1,593,232.65	2,287,959.80
2,600.0	31.07	46.02	2,368.6	-3,229.4	643.3	666.7	926.5	0.00	1,593,267.44	2,287,997.92
2,700.0	31.07	46.02	2,454.3	-3,143.7	679.2	703.8	978.1	0.00	1,593,302.23	2,288,036.04
2,800.0	31.07	46.02	2,539.9	-3,058.1	715.0	741.0	1,029.7	0.00	1,593,337.02	2,288,074.16
2,900.0	31.07	46.02	2,625.6	-2,972.4	750.8	778.1	1,081.3	0.00	1,593,371.81	2,288,112.27
3,000.0	31.07	46.02	2,711.2	-2,886.8	786.7	815.2	1,132.9	0.00	1,593,406.60	2,288,150.39
3,100.0	31.07	46.02	2,796.9	-2,801.1	822.5	852.4	1,184.5	0.00	1,593,441.39	2,288,188.51
3,200.0	31.07	46.02	2,882.5	-2,715.5	858.3	889.5	1,236.1	0.00	1,593,476.18	2,288,226.63
3,300.0	31.07	46.02	2,968.2	-2,629.8	894.2	926.7	1,287.7	0.00	1,593,510.97	2,288,264.74
3,400.0	31.07	46.02	3,053.8	-2,544.2	930.0	963.8	1,339.3	0.00	1,593,545.76	2,288,302.86
3,500.0	31.07	46.02	3,139.5	-2,458.5	965.9	1,000.9	1,390.9	0.00	1,593,580.55	2,288,340.98
3,600.0	31.07	46.02	3,225.2	-2,372.8	1,001.7	1,038.1	1,442.6	0.00	1,593,615.34	2,288,379.10
3,700.0	31.07	46.02	3,310.8	-2,287.2	1,037.5	1,075.2	1,494.2	0.00	1,593,650.13	2,288,417.22
3,800.0	31.07	46.02	3,396.5	-2,201.5	1,073.4	1,112.3	1,545.8	0.00	1,593,684.92	2,288,455.33
3,900.0	31.07	46.02	3,482.1	-2,115.9	1,109.2	1,149.5	1,597.4	0.00	1,593,719.71	2,288,493.45
3,996.0	31.07	46.02	3,564.4	-2,033.6	1,143.6	1,185.1	1,646.9	0.00	1,593,753.12	2,288,530.06
<b>Start Drop -3.00</b>										
3,996.8	31.05	46.02	3,565.0	-2,033.0	1,143.9	1,185.4	1,647.3	3.00	1,593,753.37	2,288,530.34
<b>Williams Fork</b>										
4,000.0	30.95	46.02	3,567.8	-2,030.2	1,145.0	1,186.6	1,649.0	3.00	1,593,754.50	2,288,531.57
4,100.0	27.95	46.02	3,654.8	-1,943.2	1,179.2	1,222.0	1,698.1	3.00	1,593,787.64	2,288,567.88
4,200.0	24.95	46.02	3,744.4	-1,853.6	1,210.1	1,254.0	1,742.7	3.00	1,593,817.66	2,288,600.77
4,300.0	21.95	46.02	3,836.1	-1,761.9	1,237.7	1,282.7	1,782.5	3.00	1,593,844.49	2,288,630.16
4,400.0	18.95	46.02	3,929.8	-1,668.2	1,262.0	1,307.8	1,817.4	3.00	1,593,868.04	2,288,655.97
4,500.0	15.95	46.02	4,025.2	-1,572.8	1,282.8	1,329.4	1,847.4	3.00	1,593,888.25	2,288,678.11

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well WATSON RANCH B 33A-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Site:</b>	Watson Ranch B	<b>MD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Well:</b>	WATSON RANCH B 33A-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)
4,600.0	12.95	46.02	4,122.0	-1,476.0	1,300.1	1,347.3	1,872.3	3.00	1,593,905.07	2,288,696.54
4,700.0	9.95	46.02	4,220.0	-1,378.0	1,313.9	1,361.6	1,892.2	3.00	1,593,918.45	2,288,711.20
4,800.0	6.95	46.02	4,318.9	-1,279.1	1,324.1	1,372.2	1,906.9	3.00	1,593,928.36	2,288,722.06
4,900.0	3.95	46.02	4,418.4	-1,179.6	1,330.7	1,379.0	1,916.4	3.00	1,593,934.76	2,288,729.07
5,000.0	0.95	46.02	4,518.3	-1,079.7	1,333.7	1,382.1	1,920.7	3.00	1,593,937.64	2,288,732.23
5,031.7	0.00	0.00	4,550.0	-1,048.0	1,333.9	1,382.3	1,920.9	3.00	1,593,937.82	2,288,732.42
<b>Back to Vertical - Start 2258.0 hold at 5031.7 MD - Top of Gas - 33A-17-07-95 TGT</b>										
5,100.0	0.00	0.00	4,618.3	-979.7	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
5,200.0	0.00	0.00	4,718.3	-879.7	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
5,300.0	0.00	0.00	4,818.3	-779.7	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
5,400.0	0.00	0.00	4,918.3	-679.7	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
5,500.0	0.00	0.00	5,018.3	-579.7	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
5,600.0	0.00	0.00	5,118.3	-479.7	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
5,700.0	0.00	0.00	5,218.3	-379.7	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
5,800.0	0.00	0.00	5,318.3	-279.7	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
5,900.0	0.00	0.00	5,418.3	-179.7	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
6,000.0	0.00	0.00	5,518.3	-79.7	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
6,100.0	0.00	0.00	5,618.3	20.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
6,200.0	0.00	0.00	5,718.3	120.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
6,300.0	0.00	0.00	5,818.3	220.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
6,400.0	0.00	0.00	5,918.3	320.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
6,478.7	0.00	0.00	5,997.0	399.0	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
<b>Cameo</b>										
6,500.0	0.00	0.00	6,018.3	420.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
6,600.0	0.00	0.00	6,118.3	520.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
6,700.0	0.00	0.00	6,218.3	620.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
6,800.0	0.00	0.00	6,318.3	720.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well WATSON RANCH B 33A-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Site:</b>	Watson Ranch B	<b>MD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Well:</b>	WATSON RANCH B 33A-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)
6,900.0	0.00	0.00	6,418.3	820.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
6,989.7	0.00	0.00	6,508.0	910.0	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
<b>Rollins</b>										
7,000.0	0.00	0.00	6,518.3	920.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
7,100.0	0.00	0.00	6,618.3	1,020.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
7,200.0	0.00	0.00	6,718.3	1,120.3	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
7,289.7	0.00	0.00	6,808.0	1,210.0	1,333.9	1,382.3	1,920.9	0.00	1,593,937.82	2,288,732.42
<b>TD at 7289.7</b>										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,478.7	5,997.0	Cameo		0.00		
5,031.7	4,550.0	Top of Gas		0.00		
6,989.7	6,508.0	Rollins		0.00		
3,996.8	3,565.0	Williams Fork		0.00		

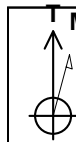
Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.0	300.0	0.0	0.0	Start Build 3.00
1,335.6	1,285.6	190.2	197.2	Start 2660.4 hold at 1335.6 MD
1,819.4	1,700.0	363.6	376.8	Surface Casing
3,996.0	3,564.4	1,143.6	1,185.1	Start Drop -3.00
5,031.7	4,550.0	1,333.9	1,382.3	Back to Vertical
5,031.7	4,550.0	1,333.9	1,382.3	Start 2258.0 hold at 5031.7 MD
7,289.7	6,808.0	1,333.9	1,382.3	TD at 7289.7

<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well WATSON RANCH B 33A-17-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Site:</b>	Watson Ranch B	<b>MD Reference:</b>	WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD
<b>Well:</b>	WATSON RANCH B 33A-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

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



Well Name: WATSON RANCH B 33A-17-07-95  
Surface Location: Watson Ranch B  
North American Datum 1983, US State Plane 1983, Colorado Central Zone  
Ground Elevation: 5585.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1592642.87 2287313.61 39° 26' 0.221 N 108° 1' 24.750 W  
PAD Est KB WATSON RANCH B 33A-17-07-95 @ 5598.0usft (PAD Est KB)



Azimuths to True North  
Magnetic North: 9.91°  
Magnetic Field  
Strength: 51869.8snT  
Dip Angle: 65.59°  
Date: 11/19/2014  
Model: IGRF2010

Watson Ranch B  
WATSON RANCH B 33A-17-07-95  
Design #1  
16:12, November 20 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
33A-17-07-95 TGT	4550.0	1333.9	1382.3	1593937.82	2288732.42	39° 26' 13.404 N	108° 1' 7.131 W	Rectangle (Sides: L40.0 W100.0)

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	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	1335.6	31.07	46.02	1285.6	190.2	197.2	3.00	46.02	274.0	
4	3996.0	31.07	46.02	3564.4	1143.6	1185.1	0.00	0.00	1646.9	
5	5031.7	0.00	0.00	4550.0	1333.9	1382.3	3.00	180.00	1920.9	33A-17-07-95 TGT
6	7289.7	0.00	0.00	6808.0	1333.9	1382.3	0.00	0.00	1920.9	

#### ANNOTATIONS

TVD	MD	Annotation
300.0	300.0	Start Build 3.00
1285.6	1335.6	Start 2660.4 hold at 1335.6 MD
1700.0	1819.4	Surface Casing
3564.4	3996.0	Start Drop -3.00
4550.0	5031.7	Back to Vertical
4550.0	5031.7	Start 2258.0 hold at 5031.7 MD
6808.0	7289.7	TD at 7289.7

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3565.0	3996.8	Williams Fork	0.00	
4550.0	5031.7	Top of Gas	0.00	
5997.0	6478.7	Cameo	0.00	
6508.0	6989.7	Rollins	0.00	

