



Ursa Operating Company, LLC

Rockies Region

Watson Ranch B

WATSON RANCH B 23A-17-07-95

Wellbore #1

Plan: Design #1

Ursa Operating Company LLC Planning Report

20 November, 2014



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well WATSON RANCH B 23A-17-07-95
Project:	Rockies Region	TVD Reference:	WATSON RANCH B 23A-17-07-95 @ 5598.0usft (PAD
Site:	Watson Ranch B	MD Reference:	WATSON RANCH B 23A-17-07-95 @ 5598.0usft (PAD
Well:	WATSON RANCH B 23A-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		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 23A-17-07-95, SHL LAT: 39.433394049 LONG: -108.023585809				
Well Position	+N/-S	0.0 usft	Northing:	1,592,643.00 usft	Latitude:	39° 26' 0.218 N
	+E/-W	0.0 usft	Easting:	2,287,301.12 usft	Longitude:	108° 1' 24.909 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	2.33

Survey Tool Program		Date	11/20/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,023.5	Design #1 (Wellbore #1)	MWD	MWD - Standard	

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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)
0.0	0.00	0.00	0.0	-5,598.0	0.0	0.0	0.0	0.00	1,592,643.00	2,287,301.12
100.0	0.00	0.00	100.0	-5,498.0	0.0	0.0	0.0	0.00	1,592,643.00	2,287,301.12
200.0	0.00	0.00	200.0	-5,398.0	0.0	0.0	0.0	0.00	1,592,643.00	2,287,301.12
300.0	0.00	0.00	300.0	-5,298.0	0.0	0.0	0.0	0.00	1,592,643.00	2,287,301.12
Start Build 3.50										
400.0	3.50	2.33	399.9	-5,198.1	3.1	0.1	3.1	3.50	1,592,646.05	2,287,301.33
500.0	7.00	2.33	499.5	-5,098.5	12.2	0.5	12.2	3.50	1,592,655.18	2,287,301.95
600.0	10.50	2.33	598.3	-4,999.7	27.4	1.1	27.4	3.50	1,592,670.35	2,287,302.99
700.0	14.00	2.33	696.0	-4,902.0	48.6	2.0	48.6	3.50	1,592,691.51	2,287,304.44
800.0	17.50	2.33	792.3	-4,805.7	75.7	3.1	75.8	3.50	1,592,718.59	2,287,306.30
900.0	21.00	2.33	886.7	-4,711.3	108.6	4.4	108.7	3.50	1,592,751.48	2,287,308.55
920.5	21.72	2.33	905.8	-4,692.2	116.1	4.7	116.2	3.50	1,592,758.94	2,287,309.06
Start 3121.0 hold at 920.5 MD										
1,000.0	21.72	2.33	979.6	-4,618.4	145.5	5.9	145.6	0.00	1,592,788.28	2,287,311.07
1,100.0	21.72	2.33	1,072.5	-4,525.5	182.5	7.4	182.6	0.00	1,592,825.20	2,287,313.60
1,200.0	21.72	2.33	1,165.4	-4,432.6	219.4	8.9	219.6	0.00	1,592,862.11	2,287,316.13
1,300.0	21.72	2.33	1,258.3	-4,339.7	256.4	10.4	256.6	0.00	1,592,899.03	2,287,318.66
1,400.0	21.72	2.33	1,351.2	-4,246.8	293.4	11.9	293.6	0.00	1,592,935.95	2,287,321.19
1,500.0	21.72	2.33	1,444.1	-4,153.9	330.4	13.4	330.6	0.00	1,592,972.87	2,287,323.72
1,600.0	21.72	2.33	1,537.0	-4,061.0	367.3	14.9	367.6	0.00	1,593,009.79	2,287,326.25
1,700.0	21.72	2.33	1,629.9	-3,968.1	404.3	16.4	404.7	0.00	1,593,046.71	2,287,328.78
1,775.4	21.72	2.33	1,700.0	-3,898.0	432.2	17.6	432.6	0.00	1,593,074.56	2,287,330.69
Surface Casing										
1,800.0	21.72	2.33	1,722.8	-3,875.2	441.3	17.9	441.7	0.00	1,593,083.62	2,287,331.32
1,900.0	21.72	2.33	1,815.7	-3,782.3	478.3	19.5	478.7	0.00	1,593,120.54	2,287,333.85
2,000.0	21.72	2.33	1,908.6	-3,689.4	515.2	21.0	515.7	0.00	1,593,157.46	2,287,336.38
2,100.0	21.72	2.33	2,001.5	-3,596.5	552.2	22.5	552.7	0.00	1,593,194.38	2,287,338.91
2,200.0	21.72	2.33	2,094.4	-3,503.6	589.2	24.0	589.7	0.00	1,593,231.30	2,287,341.44

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Well:	WATSON RANCH B 23A-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	21.72	2.33	2,187.3	-3,410.7	626.2	25.5	626.7	0.00	1,593,268.22	2,287,343.97
2,400.0	21.72	2.33	2,280.2	-3,317.8	663.1	27.0	663.7	0.00	1,593,305.14	2,287,346.50
2,500.0	21.72	2.33	2,373.1	-3,224.9	700.1	28.5	700.7	0.00	1,593,342.05	2,287,349.03
2,600.0	21.72	2.33	2,466.0	-3,132.0	737.1	30.0	737.7	0.00	1,593,378.97	2,287,351.56
2,700.0	21.72	2.33	2,558.9	-3,039.1	774.1	31.5	774.7	0.00	1,593,415.89	2,287,354.09
2,800.0	21.72	2.33	2,651.8	-2,946.2	811.0	33.0	811.7	0.00	1,593,452.81	2,287,356.62
2,900.0	21.72	2.33	2,744.7	-2,853.3	848.0	34.5	848.7	0.00	1,593,489.73	2,287,359.15
3,000.0	21.72	2.33	2,837.6	-2,760.4	885.0	36.0	885.7	0.00	1,593,526.65	2,287,361.68
3,100.0	21.72	2.33	2,930.5	-2,667.5	922.0	37.5	922.7	0.00	1,593,563.57	2,287,364.21
3,200.0	21.72	2.33	3,023.4	-2,574.6	958.9	39.0	959.7	0.00	1,593,600.48	2,287,366.74
3,300.0	21.72	2.33	3,116.3	-2,481.7	995.9	40.5	996.7	0.00	1,593,637.40	2,287,369.27
3,400.0	21.72	2.33	3,209.2	-2,388.8	1,032.9	42.0	1,033.7	0.00	1,593,674.32	2,287,371.80
3,500.0	21.72	2.33	3,302.1	-2,295.9	1,069.9	43.5	1,070.7	0.00	1,593,711.24	2,287,374.33
3,600.0	21.72	2.33	3,395.0	-2,203.0	1,106.8	45.0	1,107.7	0.00	1,593,748.16	2,287,376.86
3,700.0	21.72	2.33	3,487.9	-2,110.1	1,143.8	46.5	1,144.8	0.00	1,593,785.08	2,287,379.39
3,742.1	21.72	2.33	3,527.0	-2,071.0	1,159.4	47.2	1,160.3	0.00	1,593,800.60	2,287,380.45
Williams Fork										
3,800.0	21.72	2.33	3,580.8	-2,017.2	1,180.8	48.0	1,181.8	0.00	1,593,822.00	2,287,381.92
3,900.0	21.72	2.33	3,673.7	-1,924.3	1,217.8	49.5	1,218.8	0.00	1,593,858.91	2,287,384.45
4,000.0	21.72	2.33	3,766.6	-1,831.4	1,254.7	51.0	1,255.8	0.00	1,593,895.83	2,287,386.98
4,041.6	21.72	2.33	3,805.3	-1,792.7	1,270.1	51.7	1,271.2	0.00	1,593,911.18	2,287,388.03
Start Drop -3.00										
4,100.0	19.97	2.33	3,859.9	-1,738.1	1,290.9	52.5	1,291.9	3.00	1,593,931.92	2,287,389.45
4,200.0	16.97	2.33	3,954.7	-1,643.3	1,322.5	53.8	1,323.6	3.00	1,593,963.52	2,287,391.62
4,300.0	13.97	2.33	4,051.1	-1,546.9	1,349.2	54.9	1,350.3	3.00	1,593,990.12	2,287,393.44
4,400.0	10.97	2.33	4,148.7	-1,449.3	1,370.7	55.8	1,371.9	3.00	1,594,011.65	2,287,394.92
4,500.0	7.97	2.33	4,247.3	-1,350.7	1,387.2	56.4	1,388.3	3.00	1,594,028.05	2,287,396.04

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Site:	Watson Ranch B	MD Reference:	WATSON RANCH B 23A-17-07-95 @ 5598.0usft (PAD
Well:	WATSON RANCH B 23A-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	4.97	2.33	4,346.7	-1,251.3	1,398.4	56.9	1,399.6	3.00	1,594,039.29	2,287,396.81	
4,700.0	1.97	2.33	4,446.5	-1,151.5	1,404.4	57.1	1,405.6	3.00	1,594,045.32	2,287,397.23	
4,765.5	0.00	0.00	4,512.0	-1,086.0	1,405.6	57.2	1,406.7	3.00	1,594,046.44	2,287,397.30	
Back to Vertical - Start 2258.0 hold at 4765.5 MD - Top of Gas - 23A-17-07-95 TGT											
4,800.0	0.00	0.00	4,546.5	-1,051.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
4,900.0	0.00	0.00	4,646.5	-951.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
5,000.0	0.00	0.00	4,746.5	-851.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
5,100.0	0.00	0.00	4,846.5	-751.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
5,200.0	0.00	0.00	4,946.5	-651.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
5,300.0	0.00	0.00	5,046.5	-551.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
5,400.0	0.00	0.00	5,146.5	-451.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
5,500.0	0.00	0.00	5,246.5	-351.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
5,600.0	0.00	0.00	5,346.5	-251.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
5,700.0	0.00	0.00	5,446.5	-151.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
5,800.0	0.00	0.00	5,546.5	-51.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
5,900.0	0.00	0.00	5,646.5	48.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
6,000.0	0.00	0.00	5,746.5	148.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
6,100.0	0.00	0.00	5,846.5	248.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
6,200.0	0.00	0.00	5,946.5	348.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
6,212.5	0.00	0.00	5,959.0	361.0	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
Cameo											
6,300.0	0.00	0.00	6,046.5	448.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
6,400.0	0.00	0.00	6,146.5	548.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
6,500.0	0.00	0.00	6,246.5	648.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
6,600.0	0.00	0.00	6,346.5	748.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
6,700.0	0.00	0.00	6,446.5	848.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
6,723.5	0.00	0.00	6,470.0	872.0	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30	
Rollins											

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Well:	WATSON RANCH B 23A-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	6,546.5	948.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30
6,900.0	0.00	0.00	6,646.5	1,048.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30
7,000.0	0.00	0.00	6,746.5	1,148.5	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30
7,023.5	0.00	0.00	6,770.0	1,172.0	1,405.6	57.2	1,406.7	0.00	1,594,046.44	2,287,397.30
TD at 7023.5										

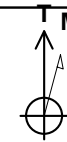
Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,742.1	3,527.0	Williams Fork		0.00		
4,765.5	4,512.0	Top of Gas		0.00		
6,212.5	5,959.0	Cameo		0.00		
6,723.5	6,470.0	Rollins		0.00		

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	
920.5	905.8	116.1	4.7	Start 3121.0 hold at 920.5 MD	
1,775.4	1,700.0	432.2	17.6	Surface Casing	
4,041.6	3,805.3	1,270.1	51.7	Start Drop -3.00	
4,765.5	4,512.0	1,405.6	57.2	Back to Vertical	
4,765.5	4,512.0	1,405.6	57.2	Start 2258.0 hold at 4765.5 MD	
7,023.5	6,770.0	1,405.6	57.2	TD at 7023.5	

Checked By: _____	Approved By: _____	Date: _____
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Well Name: WATSON RANCH B 23A-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 1592643.00 2287301.12 39° 26' 0.218 N 108° 1' 24.909 W
PAD Est KB WATSON RANCH B 23A-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 23A-17-07-95
Design #1
13:06, November 20 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
23A-17-07-95 TGT	4512.0	1405.6	57.2	1594046.44	2287397.30	39° 26' 14.111 N	108° 1' 24.180 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	920.5	21.72	2.33	905.8	116.1	4.7	3.50	2.33	116.2	
4	4041.6	21.72	2.33	3805.3	1270.1	51.7	0.00	0.00	1271.2	
5	4765.5	0.00	0.00	4512.0	1405.6	57.2	3.00	180.00	1406.7	23A-17-07-95 TGT
6	7023.5	0.00	0.00	6770.0	1405.6	57.2	0.00	0.00	1406.7	

ANNOTATIONS

TVD	MD	Annotation
300.0	300.0	Start Build 3.50
905.8	920.5	Start 3121.0 hold at 920.5 MD
1700.0	1775.4	Surface Casing
3805.3	4041.6	Start Drop -3.00
4512.0	4765.5	Back to Vertical
4512.0	4765.5	Start 2258.0 hold at 4765.5 MD
6770.0	7023.5	TD at 7023.5

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3527.0	3742.1	Williams Fork	0.00	
4512.0	4765.5	Top of Gas	0.00	
5959.0	6212.5	Cameo	0.00	
6470.0	6723.5	Rollins	0.00	

