



Ursa Operating Company, LLC

Rockies Region

Watson Ranch B

WATSON RANCH B 32B-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 32B-17-07-95
Project:	Rockies Region	TVD Reference:	WATSON RANCH B 32B-17-07-95 @ 5598.0usft (PAD
Site:	Watson Ranch B	MD Reference:	WATSON RANCH B 32B-17-07-95 @ 5598.0usft (PAD
Well:	WATSON RANCH B 32B-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:	1,592,643.01 usft
From:	Lat/Long	Easting:	2,287,301.12 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	39° 26' 0.219 N
		Longitude:	108° 1' 24.909 W
		Grid Convergence:	-1.59 °

Well	WATSON RANCH B 32B-17-07-95, SHL LAT: 39.433395244 LONG: -108.023497354		
Well Position	+N/-S	0.0 usft	Northing: 1,592,642.74 usft
	+E/-W	0.0 usft	Easting: 2,287,326.10 usft
Position Uncertainty		0.0 usft	Wellhead Elevation: 5,598.0 usft
			Latitude: 39° 26' 0.223 N
			Longitude: 108° 1' 24.590 W
			Ground Level: 5,585.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	11/19/2014	9.92
			Dip Angle (°)
			65.59
			Field Strength (nT)
			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)
	0.0	0.0	0.0
			Direction (°)
			30.69

Survey Tool Program	Date 11/20/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
0.0	7,602.5	Design #1 (Wellbore #1)	MWD
			Description
			MWD - Standard

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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	-5,598.0	0.0	0.0	0.0	0.00	1,592,642.74	2,287,326.10	
100.0	0.00	0.00	100.0	-5,498.0	0.0	0.0	0.0	0.00	1,592,642.74	2,287,326.10	
200.0	0.00	0.00	200.0	-5,398.0	0.0	0.0	0.0	0.00	1,592,642.74	2,287,326.10	
300.0	0.00	0.00	300.0	-5,298.0	0.0	0.0	0.0	0.00	1,592,642.74	2,287,326.10	
Start Build 3.50											
400.0	3.50	30.69	399.9	-5,198.1	2.6	1.6	3.1	3.50	1,592,645.32	2,287,327.73	
500.0	7.00	30.69	499.5	-5,098.5	10.5	6.2	12.2	3.50	1,592,653.06	2,287,332.62	
600.0	10.50	30.69	598.3	-4,999.7	23.6	14.0	27.4	3.50	1,592,665.92	2,287,340.75	
700.0	14.00	30.69	696.0	-4,902.0	41.8	24.8	48.6	3.50	1,592,683.85	2,287,352.08	
800.0	17.50	30.69	792.3	-4,805.7	65.2	38.7	75.8	3.50	1,592,706.80	2,287,366.57	
900.0	21.00	30.69	886.7	-4,711.3	93.5	55.5	108.7	3.50	1,592,734.66	2,287,384.18	
1,000.0	24.50	30.69	978.9	-4,619.1	126.7	75.2	147.4	3.50	1,592,767.35	2,287,404.84	
1,100.0	28.00	30.69	1,068.5	-4,529.5	164.8	97.8	191.6	3.50	1,592,804.73	2,287,428.46	
1,200.0	31.50	30.69	1,155.3	-4,442.7	207.4	123.1	241.2	3.50	1,592,846.68	2,287,454.96	
1,301.0	35.04	30.69	1,239.8	-4,358.2	255.1	151.4	296.6	3.50	1,592,893.52	2,287,484.55	
Start 3603.4 hold at 1301.0 MD											
1,400.0	35.04	30.69	1,320.8	-4,277.2	303.9	180.4	353.5	0.00	1,592,941.55	2,287,514.91	
1,500.0	35.04	30.69	1,402.7	-4,195.3	353.3	209.7	410.9	0.00	1,592,990.09	2,287,545.57	
1,600.0	35.04	30.69	1,484.6	-4,113.4	402.7	239.0	468.3	0.00	1,593,038.62	2,287,576.24	
1,700.0	35.04	30.69	1,566.5	-4,031.5	452.0	268.3	525.7	0.00	1,593,087.15	2,287,606.90	
1,800.0	35.04	30.69	1,648.4	-3,949.6	501.4	297.7	583.1	0.00	1,593,135.69	2,287,637.57	
1,863.1	35.04	30.69	1,700.0	-3,898.0	532.5	316.1	619.3	0.00	1,593,166.30	2,287,656.91	
Surface Casing											
1,900.0	35.04	30.69	1,730.2	-3,867.8	550.8	327.0	640.5	0.00	1,593,184.22	2,287,668.23	
2,000.0	35.04	30.69	1,812.1	-3,785.9	600.1	356.3	697.9	0.00	1,593,232.75	2,287,698.90	
2,100.0	35.04	30.69	1,894.0	-3,704.0	649.5	385.6	755.3	0.00	1,593,281.28	2,287,729.56	
2,200.0	35.04	30.69	1,975.9	-3,622.1	698.9	414.9	812.7	0.00	1,593,329.82	2,287,760.23	
2,300.0	35.04	30.69	2,057.8	-3,540.2	748.2	444.2	870.1	0.00	1,593,378.35	2,287,790.89	

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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)	
2,400.0	35.04	30.69	2,139.6	-3,458.4	797.6	473.5	927.5	0.00	1,593,426.88	2,287,821.56	
2,500.0	35.04	30.69	2,221.5	-3,376.5	847.0	502.8	985.0	0.00	1,593,475.41	2,287,852.22	
2,600.0	35.04	30.69	2,303.4	-3,294.6	896.3	532.1	1,042.4	0.00	1,593,523.95	2,287,882.89	
2,700.0	35.04	30.69	2,385.3	-3,212.7	945.7	561.4	1,099.8	0.00	1,593,572.48	2,287,913.55	
2,800.0	35.04	30.69	2,467.1	-3,130.9	995.1	590.7	1,157.2	0.00	1,593,621.01	2,287,944.22	
2,900.0	35.04	30.69	2,549.0	-3,049.0	1,044.4	620.0	1,214.6	0.00	1,593,669.54	2,287,974.88	
3,000.0	35.04	30.69	2,630.9	-2,967.1	1,093.8	649.3	1,272.0	0.00	1,593,718.08	2,288,005.55	
3,100.0	35.04	30.69	2,712.8	-2,885.2	1,143.2	678.6	1,329.4	0.00	1,593,766.61	2,288,036.21	
3,200.0	35.04	30.69	2,794.7	-2,803.3	1,192.5	707.9	1,386.8	0.00	1,593,815.14	2,288,066.88	
3,300.0	35.04	30.69	2,876.5	-2,721.5	1,241.9	737.2	1,444.2	0.00	1,593,863.68	2,288,097.54	
3,400.0	35.04	30.69	2,958.4	-2,639.6	1,291.3	766.5	1,501.6	0.00	1,593,912.21	2,288,128.21	
3,500.0	35.04	30.69	3,040.3	-2,557.7	1,340.6	795.8	1,559.0	0.00	1,593,960.74	2,288,158.87	
3,600.0	35.04	30.69	3,122.2	-2,475.8	1,390.0	825.1	1,616.5	0.00	1,594,009.27	2,288,189.54	
3,700.0	35.04	30.69	3,204.1	-2,393.9	1,439.4	854.5	1,673.9	0.00	1,594,057.81	2,288,220.20	
3,800.0	35.04	30.69	3,285.9	-2,312.1	1,488.7	883.8	1,731.3	0.00	1,594,106.34	2,288,250.87	
3,900.0	35.04	30.69	3,367.8	-2,230.2	1,538.1	913.1	1,788.7	0.00	1,594,154.87	2,288,281.53	
4,000.0	35.04	30.69	3,449.7	-2,148.3	1,587.4	942.4	1,846.1	0.00	1,594,203.40	2,288,312.20	
4,100.0	35.04	30.69	3,531.6	-2,066.4	1,636.8	971.7	1,903.5	0.00	1,594,251.94	2,288,342.86	
4,165.2	35.04	30.69	3,585.0	-2,013.0	1,669.0	990.8	1,941.0	0.00	1,594,283.60	2,288,362.87	
Williams Fork											
4,200.0	35.04	30.69	3,613.5	-1,984.5	1,686.2	1,001.0	1,960.9	0.00	1,594,300.47	2,288,373.53	
4,300.0	35.04	30.69	3,695.3	-1,902.7	1,735.5	1,030.3	2,018.3	0.00	1,594,349.00	2,288,404.19	
4,400.0	35.04	30.69	3,777.2	-1,820.8	1,784.9	1,059.6	2,075.7	0.00	1,594,397.54	2,288,434.86	
4,500.0	35.04	30.69	3,859.1	-1,738.9	1,834.3	1,088.9	2,133.1	0.00	1,594,446.07	2,288,465.52	
4,600.0	35.04	30.69	3,941.0	-1,657.0	1,883.6	1,118.2	2,190.5	0.00	1,594,494.60	2,288,496.19	
4,700.0	35.04	30.69	4,022.9	-1,575.1	1,933.0	1,147.5	2,248.0	0.00	1,594,543.13	2,288,526.85	
4,800.0	35.04	30.69	4,104.7	-1,493.3	1,982.4	1,176.8	2,305.4	0.00	1,594,591.67	2,288,557.52	

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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)
4,904.4	35.04	30.69	4,190.2	-1,407.8	2,033.9	1,207.4	2,365.3	0.00	1,594,642.33	2,288,589.53
Start Drop -3.50										
5,000.0	31.69	30.69	4,270.1	-1,327.9	2,079.1	1,234.2	2,417.9	3.50	1,594,686.77	2,288,617.61
5,100.0	28.19	30.69	4,356.7	-1,241.3	2,122.0	1,259.7	2,467.8	3.50	1,594,728.96	2,288,644.27
5,200.0	24.69	30.69	4,446.2	-1,151.8	2,160.3	1,282.4	2,512.3	3.50	1,594,766.59	2,288,668.04
5,300.0	21.19	30.69	4,538.3	-1,059.7	2,193.8	1,302.3	2,551.2	3.50	1,594,799.54	2,288,688.86
5,333.9	20.00	30.69	4,570.0	-1,028.0	2,204.1	1,308.4	2,563.2	3.50	1,594,809.61	2,288,695.22
Top of Gas										
5,365.8	18.89	30.69	4,600.1	-997.9	2,213.2	1,313.8	2,573.8	3.50	1,594,818.59	2,288,700.90
32B-17-07-95 TGT										
5,400.0	17.69	30.69	4,632.6	-965.4	2,222.4	1,319.3	2,584.5	3.50	1,594,827.67	2,288,706.63
5,500.0	14.19	30.69	4,728.7	-869.3	2,246.0	1,333.3	2,612.0	3.50	1,594,850.88	2,288,721.30
5,600.0	10.69	30.69	4,826.4	-771.6	2,264.6	1,344.3	2,633.5	3.50	1,594,869.09	2,288,732.81
5,700.0	7.19	30.69	4,925.1	-672.9	2,277.9	1,352.3	2,649.1	3.50	1,594,882.22	2,288,741.10
5,800.0	3.69	30.69	5,024.7	-573.3	2,286.1	1,357.1	2,658.5	3.50	1,594,890.23	2,288,746.17
5,905.4	0.00	0.00	5,130.0	-468.0	2,289.0	1,358.8	2,661.9	3.50	1,594,893.10	2,288,747.98
Back to Vertical - Start 1698.0 hold at 5905.4 MD										
6,000.0	0.00	0.00	5,224.6	-373.4	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
6,100.0	0.00	0.00	5,324.6	-273.4	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
6,200.0	0.00	0.00	5,424.6	-173.4	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
6,300.0	0.00	0.00	5,524.6	-73.4	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
6,400.0	0.00	0.00	5,624.6	26.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
6,500.0	0.00	0.00	5,724.6	126.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
6,600.0	0.00	0.00	5,824.6	226.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
6,700.0	0.00	0.00	5,924.6	326.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
6,792.4	0.00	0.00	6,017.0	419.0	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
Cameo										
6,800.0	0.00	0.00	6,024.6	426.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98

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6,900.0	0.00	0.00	6,124.6	526.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
7,000.0	0.00	0.00	6,224.6	626.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
7,100.0	0.00	0.00	6,324.6	726.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
7,200.0	0.00	0.00	6,424.6	826.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
7,300.0	0.00	0.00	6,524.6	926.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
7,303.4	0.00	0.00	6,528.0	930.0	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
Rollins										
7,400.0	0.00	0.00	6,624.6	1,026.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
7,500.0	0.00	0.00	6,724.6	1,126.6	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
7,603.4	0.00	0.00	6,828.0	1,230.0	2,289.0	1,358.8	2,661.9	0.00	1,594,893.10	2,288,747.98
TD at 7603.4										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,165.2	3,585.0	Williams Fork		0.00		
5,333.9	4,570.0	Top of Gas		0.00		
7,303.4	6,528.0	Rollins		0.00		
6,792.4	6,017.0	Cameo		0.00		

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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 3.50
1,301.0	1,239.8	255.1	151.4	Start 3603.4 hold at 1301.0 MD
1,863.1	1,700.0	532.5	316.1	Surface Casing
4,904.4	4,190.2	2,033.9	1,207.4	Start Drop -3.50
5,905.4	5,130.0	2,289.0	1,358.8	Back to Vertical
5,905.4	5,130.0	2,289.0	1,358.8	Start 1698.0 hold at 5905.4 MD
7,603.4	6,828.0	2,289.0	1,358.8	TD at 7603.4

Checked By: _____ Approved By: _____ Date: _____

