



Ursa Operating Company, LLC

Rockies Region

Watson Ranch B

WATSON RANCH B 34A-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 34A-17-07-95
Project:	Rockies Region	TVD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Site:	Watson Ranch B	MD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Well:	WATSON RANCH B 34A-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 34A-17-07-95, SHL LAT: 39.433333509 LONG: -108.023495968				
Well Position	+N/-S	0.0 usft	Northing:	1,592,620.25 usft	Latitude:	39° 26' 0.000 N
	+E/-W	0.0 usft	Easting:	2,287,325.87 usft	Longitude:	108° 1' 24.585 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	11/20/2014	9.91	65.59	51,869

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	80.18

Survey Tool Program		Date	11/20/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.0	7,015.4	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well WATSON RANCH B 34A-17-07-95
Project:	Rockies Region	TVD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Site:	Watson Ranch B	MD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Well:	WATSON RANCH B 34A-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)
0.0	0.00	0.00	0.0	-5,598.0	0.0	0.0	0.0	0.00	1,592,620.25	2,287,325.87
100.0	0.00	0.00	100.0	-5,498.0	0.0	0.0	0.0	0.00	1,592,620.25	2,287,325.87
200.0	0.00	0.00	200.0	-5,398.0	0.0	0.0	0.0	0.00	1,592,620.25	2,287,325.87
300.0	0.00	0.00	300.0	-5,298.0	0.0	0.0	0.0	0.00	1,592,620.25	2,287,325.87
Start Build 1.00										
400.0	1.00	60.00	400.0	-5,198.0	0.4	0.8	0.8	1.00	1,592,620.67	2,287,326.64
500.0	2.00	60.00	500.0	-5,098.0	1.7	3.0	3.3	1.00	1,592,621.91	2,287,328.94
Start DLS 3.00 TFO 22.26										
600.0	4.91	73.40	599.8	-4,998.2	3.8	8.6	9.2	3.00	1,592,623.85	2,287,334.61
700.0	7.89	76.77	699.1	-4,898.9	6.6	19.4	20.3	3.00	1,592,626.34	2,287,345.47
800.0	10.88	78.31	797.8	-4,800.2	10.1	35.3	36.5	3.00	1,592,629.38	2,287,361.48
900.0	13.87	79.18	895.5	-4,702.5	14.3	56.4	58.0	3.00	1,592,632.96	2,287,382.60
1,000.0	16.87	79.75	991.9	-4,606.1	19.1	82.4	84.5	3.00	1,592,637.07	2,287,408.78
1,100.0	19.86	80.15	1,086.8	-4,511.2	24.6	113.4	116.0	3.00	1,592,641.69	2,287,439.95
1,183.3	22.36	80.41	1,164.5	-4,433.5	29.7	143.0	146.0	3.00	1,592,645.93	2,287,469.67
Start 2828.6 hold at 1183.3 MD										
1,200.0	22.36	80.41	1,179.9	-4,418.1	30.7	149.3	152.3	0.00	1,592,646.81	2,287,475.94
1,300.0	22.36	80.41	1,272.4	-4,325.6	37.1	186.8	190.4	0.00	1,592,652.11	2,287,513.62
1,400.0	22.36	80.41	1,364.9	-4,233.1	43.4	224.3	228.4	0.00	1,592,657.40	2,287,551.30
1,500.0	22.36	80.41	1,457.3	-4,140.7	49.7	261.8	266.5	0.00	1,592,662.69	2,287,588.98
1,600.0	22.36	80.41	1,549.8	-4,048.2	56.1	299.3	304.5	0.00	1,592,667.99	2,287,626.66
1,700.0	22.36	80.41	1,642.3	-3,955.7	62.4	336.9	342.6	0.00	1,592,673.28	2,287,664.33
1,762.4	22.36	80.41	1,700.0	-3,898.0	66.4	360.3	366.3	0.00	1,592,676.59	2,287,687.84
Surface Casing										
1,800.0	22.36	80.41	1,734.8	-3,863.2	68.8	374.4	380.6	0.00	1,592,678.58	2,287,702.01
1,900.0	22.36	80.41	1,827.3	-3,770.7	75.1	411.9	418.7	0.00	1,592,683.87	2,287,739.69
2,000.0	22.36	80.41	1,919.7	-3,678.3	81.4	449.4	456.7	0.00	1,592,689.17	2,287,777.37
2,100.0	22.36	80.41	2,012.2	-3,585.8	87.8	486.9	494.8	0.00	1,592,694.46	2,287,815.05

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well WATSON RANCH B 34A-17-07-95
Project:	Rockies Region	TVD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Site:	Watson Ranch B	MD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Well:	WATSON RANCH B 34A-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)
2,200.0	22.36	80.41	2,104.7	-3,493.3	94.1	524.4	532.8	0.00	1,592,699.75	2,287,852.72
2,300.0	22.36	80.41	2,197.2	-3,400.8	100.4	562.0	570.9	0.00	1,592,705.05	2,287,890.40
2,400.0	22.36	80.41	2,289.7	-3,308.3	106.8	599.5	608.9	0.00	1,592,710.34	2,287,928.08
2,500.0	22.36	80.41	2,382.1	-3,215.9	113.1	637.0	647.0	0.00	1,592,715.64	2,287,965.76
2,600.0	22.36	80.41	2,474.6	-3,123.4	119.5	674.5	685.0	0.00	1,592,720.93	2,288,003.44
2,700.0	22.36	80.41	2,567.1	-3,030.9	125.8	712.0	723.0	0.00	1,592,726.22	2,288,041.12
2,800.0	22.36	80.41	2,659.6	-2,938.4	132.1	749.5	761.1	0.00	1,592,731.52	2,288,078.79
2,900.0	22.36	80.41	2,752.0	-2,846.0	138.5	787.1	799.1	0.00	1,592,736.81	2,288,116.47
3,000.0	22.36	80.41	2,844.5	-2,753.5	144.8	824.6	837.2	0.00	1,592,742.11	2,288,154.15
3,100.0	22.36	80.41	2,937.0	-2,661.0	151.2	862.1	875.2	0.00	1,592,747.40	2,288,191.83
3,200.0	22.36	80.41	3,029.5	-2,568.5	157.5	899.6	913.3	0.00	1,592,752.70	2,288,229.51
3,300.0	22.36	80.41	3,122.0	-2,476.0	163.8	937.1	951.3	0.00	1,592,757.99	2,288,267.18
3,400.0	22.36	80.41	3,214.4	-2,383.6	170.2	974.6	989.4	0.00	1,592,763.28	2,288,304.86
3,500.0	22.36	80.41	3,306.9	-2,291.1	176.5	1,012.2	1,027.4	0.00	1,592,768.58	2,288,342.54
3,600.0	22.36	80.41	3,399.4	-2,198.6	182.8	1,049.7	1,065.5	0.00	1,592,773.87	2,288,380.22
3,700.0	22.36	80.41	3,491.9	-2,106.1	189.2	1,087.2	1,103.5	0.00	1,592,779.17	2,288,417.90
3,732.6	22.36	80.41	3,522.0	-2,076.0	191.2	1,099.4	1,115.9	0.00	1,592,780.89	2,288,430.17
Williams Fork										
3,800.0	22.36	80.41	3,584.4	-2,013.6	195.5	1,124.7	1,141.6	0.00	1,592,784.46	2,288,455.57
3,900.0	22.36	80.41	3,676.8	-1,921.2	201.9	1,162.2	1,179.6	0.00	1,592,789.76	2,288,493.25
4,000.0	22.36	80.41	3,769.3	-1,828.7	208.2	1,199.7	1,217.7	0.00	1,592,795.05	2,288,530.93
4,011.9	22.36	80.41	3,780.3	-1,817.7	209.0	1,204.2	1,222.2	0.00	1,592,795.68	2,288,535.42
Start Drop -3.00										
4,100.0	19.72	80.41	3,862.5	-1,735.5	214.2	1,235.4	1,253.8	3.00	1,592,800.08	2,288,566.74
4,200.0	16.72	80.41	3,957.5	-1,640.5	219.4	1,266.2	1,285.1	3.00	1,592,804.43	2,288,597.70
4,300.0	13.72	80.41	4,054.0	-1,544.0	223.8	1,292.1	1,311.3	3.00	1,592,808.08	2,288,623.69
4,400.0	10.72	80.41	4,151.7	-1,446.3	227.3	1,313.0	1,332.5	3.00	1,592,811.03	2,288,644.65

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well WATSON RANCH B 34A-17-07-95
Project:	Rockies Region	TVD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Site:	Watson Ranch B	MD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Well:	WATSON RANCH B 34A-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)
4,500.0	7.72	80.41	4,250.4	-1,347.6	230.0	1,328.8	1,348.5	3.00	1,592,813.26	2,288,660.52
4,600.0	4.72	80.41	4,349.8	-1,248.2	231.8	1,339.5	1,359.4	3.00	1,592,814.77	2,288,671.25
4,700.0	1.72	80.41	4,449.6	-1,148.4	232.7	1,345.0	1,365.0	3.00	1,592,815.55	2,288,676.81
4,757.4	0.00	0.00	4,507.0	-1,091.0	232.9	1,345.8	1,365.8	3.00	1,592,815.67	2,288,677.67
Start 2258.0 hold at 4757.4 MD - Back to Vertical - Top of Gas - 34A-17-07-95 TGT										
4,800.0	0.00	0.00	4,549.6	-1,048.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
4,900.0	0.00	0.00	4,649.6	-948.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
5,000.0	0.00	0.00	4,749.6	-848.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
5,100.0	0.00	0.00	4,849.6	-748.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
5,200.0	0.00	0.00	4,949.6	-648.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
5,300.0	0.00	0.00	5,049.6	-548.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
5,400.0	0.00	0.00	5,149.6	-448.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
5,500.0	0.00	0.00	5,249.6	-348.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
5,600.0	0.00	0.00	5,349.6	-248.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
5,700.0	0.00	0.00	5,449.6	-148.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
5,800.0	0.00	0.00	5,549.6	-48.4	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
5,900.0	0.00	0.00	5,649.6	51.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
6,000.0	0.00	0.00	5,749.6	151.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
6,100.0	0.00	0.00	5,849.6	251.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
6,200.0	0.00	0.00	5,949.6	351.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
6,204.4	0.00	0.00	5,954.0	356.0	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
Cameo										
6,300.0	0.00	0.00	6,049.6	451.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
6,400.0	0.00	0.00	6,149.6	551.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
6,500.0	0.00	0.00	6,249.6	651.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
6,600.0	0.00	0.00	6,349.6	751.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
6,700.0	0.00	0.00	6,449.6	851.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well WATSON RANCH B 34A-17-07-95
Project:	Rockies Region	TVD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Site:	Watson Ranch B	MD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Well:	WATSON RANCH B 34A-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)
6,715.4	0.00	0.00	6,465.0	867.0	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
Rollins										
6,800.0	0.00	0.00	6,549.6	951.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
6,900.0	0.00	0.00	6,649.6	1,051.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
7,000.0	0.00	0.00	6,749.6	1,151.6	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
7,015.4	0.00	0.00	6,765.0	1,167.0	232.9	1,345.8	1,365.8	0.00	1,592,815.67	2,288,677.67
TD at 7015.4										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,715.4	6,465.0	Rollins		0.00		
4,757.4	4,507.0	Top of Gas		0.00		
3,732.6	3,522.0	Williams Fork		0.00		
6,204.4	5,954.0	Cameo		0.00		

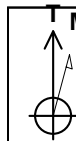
Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.0	300.0	0.0	0.0	Start Build 1.00
500.0	500.0	1.7	3.0	Start DLS 3.00 TFO 22.26
1,183.3	1,164.5	29.7	143.0	Start 2828.6 hold at 1183.3 MD
1,762.4	1,700.0	66.4	360.3	Surface Casing
4,011.9	3,780.3	209.0	1,204.2	Start Drop -3.00
4,757.4	4,507.0	232.9	1,345.8	Start 2258.0 hold at 4757.4 MD
4,757.4	4,507.0	232.9	1,345.8	Back to Vertical
7,015.4	6,765.0	232.9	1,345.8	TD at 7015.4

Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well WATSON RANCH B 34A-17-07-95
Project:	Rockies Region	TVD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Site:	Watson Ranch B	MD Reference:	WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD
Well:	WATSON RANCH B 34A-17-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Design #1	Database:	MasterDB

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



Well Name: WATSON RANCH B 34A-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 1592620.25 2287325.87 39° 26' 0.000 N 108° 1' 24.585 W
PAD Est KB WATSON RANCH B 34A-17-07-95 @ 5598.0usft (PAD Est KB)



Azimuths to True North
Magnetic North: 9.91°
Magnetic Field
Strength: 51869.5nT
Dip Angle: 65.59°
Date: 11/20/2014
Model: IGRF2010

Watson Ranch B
WATSON RANCH B 34A-17-07-95
Design #1
19:23, November 20 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
34A-17-07-95 TGT4507.0		232.9	1345.8	1592815.67	2288677.67	39° 26' 2.302 N	108° 1' 7.432 W	Rectangle (Sides: L40.0 W65.0)

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	500.0	2.00	60.00	500.0	1.7	3.0	1.00	60.00	3.3	
4	1183.3	22.36	80.41	1164.5	29.7	143.0	3.00	22.26	146.0	
5	4011.9	22.36	80.41	3780.3	209.0	1204.2	0.00	0.00	1222.2	
6	4757.4	0.00	0.00	4507.0	232.9	1345.8	3.00	180.00	1365.8	34A-17-07-95 TGT
7	7015.4	0.00	0.00	6765.0	232.9	1345.8	0.00	0.00	1365.8	

ANNOTATIONS

TVD	MD	Annotation
300.0	300.0	Start Build 1.00
500.0	500.0	Start DLS 3.00 TFO 22.26
1164.5	1183.3	Start 2828.6 hold at 1183.3 MD
1700.0	1762.4	Surface Casing
3780.3	4011.9	Start Drop -3.00
4507.0	4757.4	Back to Vertical
4507.0	4757.4	Start 2258.0 hold at 4757.4 MD
6765.0	7015.4	TD at 7015.4

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3522.0	3732.6	Williams Fork	0.00	
4507.0	4757.4	Top of Gas	0.00	
5954.0	6204.4	Cameo	0.00	
6465.0	6715.4	Rollins	0.00	

