



Ursa Operating Company, LLC

Rockies Region

Tompkins

BAT 42C-08-07-95

Wellbore #1

Plan: Design #1

Standard Planning Report

20 May, 2014



Database:	MasterDB	Local Co-ordinate Reference:	Well BAT 42C-08-07-95
Company:	Ursa Operating Company, LLC	TVD Reference:	BAT 42C-08-07-95 @ 5547.4usft (treme 15)
Project:	Rockies Region	MD Reference:	BAT 42C-08-07-95 @ 5547.4usft (treme 15)
Site:	Tompkins	North Reference:	True
Well:	BAT 42C-08-07-95	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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		Tompkins			
Site Position:		Northing:	1,602,267.15 usft	Latitude:	39° 27' 36.106 N
From:	Lat/Long	Easting:	2,290,225.27 usft	Longitude:	108° 0' 51.048 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.59 °

Well	BAT 42C-08-07-95, SHL LAT: 39.459960100 LONG: -108.013783700					
Well Position	+N/-S	-25.3 usft	Northing:	1,602,238.82 usft	Latitude:	39° 27' 35.856 N
	+E/-W	111.9 usft	Easting:	2,290,336.39 usft	Longitude:	108° 0' 49.621 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,547.4 usft	Ground Level:	5,532.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/20/2014	9.98	65.63	51,936

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	182.43

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,430.7	36.07	182.43	1,363.9	-313.6	-13.3	3.50	3.50	0.00	182.43	
4,253.5	36.07	182.43	3,645.5	-1,974.2	-83.8	0.00	0.00	0.00	0.00	
5,284.1	0.00	0.00	4,609.4	-2,287.8	-97.1	3.50	-3.50	0.00	180.00	BAT 42C-08-07-95 TC
7,598.7	0.00	0.00	6,924.0	-2,287.8	-97.1	0.00	0.00	0.00	0.00	

Database:	MasterDB	Local Co-ordinate Reference:	Well BAT 42C-08-07-95
Company:	Ursa Operating Company, LLC	TVD Reference:	BAT 42C-08-07-95 @ 5547.4usft (treme 15)
Project:	Rockies Region	MD Reference:	BAT 42C-08-07-95 @ 5547.4usft (treme 15)
Site:	Tompkins	North Reference:	True
Well:	BAT 42C-08-07-95	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 3.50									
500.0	3.50	182.43	499.9	-3.1	-0.1	3.1	3.50	3.50	0.00
600.0	7.00	182.43	599.5	-12.2	-0.5	12.2	3.50	3.50	0.00
700.0	10.50	182.43	698.3	-27.4	-1.2	27.4	3.50	3.50	0.00
800.0	14.00	182.43	796.0	-48.6	-2.1	48.6	3.50	3.50	0.00
900.0	17.50	182.43	892.3	-75.7	-3.2	75.8	3.50	3.50	0.00
1,000.0	21.00	182.43	986.7	-108.6	-4.6	108.7	3.50	3.50	0.00
1,100.0	24.50	182.43	1,078.9	-147.3	-6.3	147.4	3.50	3.50	0.00
1,200.0	28.00	182.43	1,168.5	-191.4	-8.1	191.6	3.50	3.50	0.00
1,300.0	31.50	182.43	1,255.3	-241.0	-10.2	241.2	3.50	3.50	0.00
1,400.0	35.00	182.43	1,339.0	-295.8	-12.6	296.1	3.50	3.50	0.00
1,430.7	36.07	182.43	1,363.9	-313.6	-13.3	313.9	3.50	3.50	0.00
1,430.8	36.07	182.43	1,364.0	-313.7	-13.3	314.0	0.00	0.00	0.00
Start 2822.2 hold at 1430.8 MD									
1,500.0	36.07	182.43	1,420.0	-354.4	-15.0	354.7	0.00	0.00	0.00
1,600.0	36.07	182.43	1,500.8	-413.2	-17.5	413.6	0.00	0.00	0.00
1,700.0	36.07	182.43	1,581.6	-472.0	-20.0	472.5	0.00	0.00	0.00
1,800.0	36.07	182.43	1,662.4	-530.9	-22.5	531.3	0.00	0.00	0.00
1,846.5	36.07	182.43	1,700.0	-558.2	-23.7	558.7	0.00	0.00	0.00
Surface Casing									
1,900.0	36.07	182.43	1,743.3	-589.7	-25.0	590.2	0.00	0.00	0.00
2,000.0	36.07	182.43	1,824.1	-648.5	-27.5	649.1	0.00	0.00	0.00
2,100.0	36.07	182.43	1,904.9	-707.4	-30.0	708.0	0.00	0.00	0.00
2,200.0	36.07	182.43	1,985.7	-766.2	-32.5	766.9	0.00	0.00	0.00
2,300.0	36.07	182.43	2,066.6	-825.0	-35.0	825.8	0.00	0.00	0.00
2,400.0	36.07	182.43	2,147.4	-883.8	-37.5	884.6	0.00	0.00	0.00
2,500.0	36.07	182.43	2,228.2	-942.7	-40.0	943.5	0.00	0.00	0.00
2,600.0	36.07	182.43	2,309.0	-1,001.5	-42.5	1,002.4	0.00	0.00	0.00
2,700.0	36.07	182.43	2,389.9	-1,060.3	-45.0	1,061.3	0.00	0.00	0.00
2,800.0	36.07	182.43	2,470.7	-1,119.2	-47.5	1,120.2	0.00	0.00	0.00
2,900.0	36.07	182.43	2,551.5	-1,178.0	-50.0	1,179.1	0.00	0.00	0.00
3,000.0	36.07	182.43	2,632.3	-1,236.8	-52.5	1,237.9	0.00	0.00	0.00
3,100.0	36.07	182.43	2,713.2	-1,295.6	-55.0	1,296.8	0.00	0.00	0.00
3,200.0	36.07	182.43	2,794.0	-1,354.5	-57.5	1,355.7	0.00	0.00	0.00
3,300.0	36.07	182.43	2,874.8	-1,413.3	-60.0	1,414.6	0.00	0.00	0.00
3,400.0	36.07	182.43	2,955.7	-1,472.1	-62.5	1,473.5	0.00	0.00	0.00
3,500.0	36.07	182.43	3,036.5	-1,531.0	-65.0	1,532.3	0.00	0.00	0.00
3,600.0	36.07	182.43	3,117.3	-1,589.8	-67.5	1,591.2	0.00	0.00	0.00
3,700.0	36.07	182.43	3,198.1	-1,648.6	-70.0	1,650.1	0.00	0.00	0.00
3,800.0	36.07	182.43	3,279.0	-1,707.5	-72.5	1,709.0	0.00	0.00	0.00
3,900.0	36.07	182.43	3,359.8	-1,766.3	-75.0	1,767.9	0.00	0.00	0.00
4,000.0	36.07	182.43	3,440.6	-1,825.1	-77.5	1,826.8	0.00	0.00	0.00
4,100.0	36.07	182.43	3,521.4	-1,883.9	-80.0	1,885.6	0.00	0.00	0.00
4,170.5	36.07	182.43	3,578.4	-1,925.4	-81.7	1,927.1	0.00	0.00	0.00
Williams Fork									
4,200.0	36.07	182.43	3,602.3	-1,942.8	-82.5	1,944.5	0.00	0.00	0.00
4,253.0	36.07	182.43	3,645.1	-1,974.0	-83.8	1,975.7	0.00	0.00	0.00
Start Drop -3.50									
4,253.5	36.07	182.43	3,645.5	-1,974.2	-83.8	1,976.0	0.00	0.00	0.00

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Site:	Tompkins	North Reference:	True
Well:	BAT 42C-08-07-95	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,300.0	34.45	182.43	3,683.5	-2,001.1	-85.0	2,002.9	3.50	-3.50	0.00
4,400.0	30.95	182.43	3,767.6	-2,055.0	-87.3	2,056.9	3.50	-3.50	0.00
4,500.0	27.45	182.43	3,854.9	-2,103.7	-89.3	2,105.6	3.50	-3.50	0.00
4,600.0	23.95	182.43	3,945.0	-2,147.1	-91.2	2,149.0	3.50	-3.50	0.00
4,700.0	20.45	182.43	4,037.6	-2,184.8	-92.8	2,186.8	3.50	-3.50	0.00
4,800.0	16.95	182.43	4,132.3	-2,216.8	-94.1	2,218.8	3.50	-3.50	0.00
4,900.0	13.45	182.43	4,228.8	-2,243.0	-95.2	2,245.0	3.50	-3.50	0.00
5,000.0	9.95	182.43	4,326.7	-2,263.3	-96.1	2,265.3	3.50	-3.50	0.00
5,100.0	6.45	182.43	4,425.6	-2,277.5	-96.7	2,279.5	3.50	-3.50	0.00
5,200.0	2.95	182.43	4,525.3	-2,285.7	-97.0	2,287.7	3.50	-3.50	0.00
5,283.8	0.01	182.43	4,609.1	-2,287.8	-97.1	2,289.9	3.50	-3.50	0.00
Start 2315.0 hold at 5283.8 MD									
5,284.1	0.00	0.00	4,609.4	-2,287.8	-97.1	2,289.9	3.50	-3.50	0.00
Back to Vertical - Top of Gas - BAT 42C-08-07-95 TGT									
5,300.0	0.00	0.00	4,625.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
5,400.0	0.00	0.00	4,725.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
5,500.0	0.00	0.00	4,825.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
5,600.0	0.00	0.00	4,925.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
5,700.0	0.00	0.00	5,025.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,125.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
5,900.0	0.00	0.00	5,225.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,325.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
6,100.0	0.00	0.00	5,425.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
6,200.0	0.00	0.00	5,525.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
6,300.0	0.00	0.00	5,625.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
6,400.0	0.00	0.00	5,725.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
6,500.0	0.00	0.00	5,825.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
6,600.0	0.00	0.00	5,925.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
6,700.0	0.00	0.00	6,025.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,125.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
6,801.1	0.00	0.00	6,126.4	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
Cameo									
6,900.0	0.00	0.00	6,225.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,325.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
7,100.0	0.00	0.00	6,425.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
7,200.0	0.00	0.00	6,525.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
7,299.1	0.00	0.00	6,624.4	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
Rollins									
7,300.0	0.00	0.00	6,625.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
7,400.0	0.00	0.00	6,725.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
7,500.0	0.00	0.00	6,825.3	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
7,598.7	0.00	0.00	6,924.0	-2,287.8	-97.1	2,289.9	0.00	0.00	0.00
TD at 7598.8									

Database:	MasterDB	Local Co-ordinate Reference:	Well BAT 42C-08-07-95
Company:	Ursa Operating Company, LLC	TVD Reference:	BAT 42C-08-07-95 @ 5547.4usft (treme 15)
Project:	Rockies Region	MD Reference:	BAT 42C-08-07-95 @ 5547.4usft (treme 15)
Site:	Tompkins	North Reference:	True
Well:	BAT 42C-08-07-95	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
BAT 42C-08-07-95 TGT	0.00	0.00	4,609.4	-2,287.8	-97.1	1,599,954.55	2,290,175.99	39° 27' 13.244 N	108° 0' 50.860 W
- plan hits target center									
- Rectangle (sides W100.0 H40.0 D2,315.0)									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,170.5	3,578.4	Williams Fork		0.00		
5,284.1	4,609.4	Top of Gas		0.00		
6,801.1	6,126.4	Cameo		0.00		
7,299.1	6,624.4	Rollins		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
400.0	400.0	0.0	0.0	Start Build 3.50	
1,430.8	1,364.0	-313.7	-13.3	Start 2822.2 hold at 1430.8 MD	
1,846.5	1,700.0	-558.3	-23.7	Surface Casing	
4,253.0	3,645.0	-1,974.2	-83.8	Start Drop -3.50	
5,283.8	4,609.0	-2,287.8	-97.1	Start 2315.0 hold at 5283.8 MD	
5,284.2	4,609.4	-2,287.8	-97.1	Back to Vertical	
7,598.8	6,924.0	-2,287.8	-97.1	TD at 7598.8	



Well Name: BAT 42C-08-07-95
Surface Location: Tompkins
North American Datum 1983, US State Plane 1983, Colorado Central Zone
Ground Elevation: 5532.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1602238.82 2290336.39 39° 27' 35.856 N 108° 0' 49.621 W
treme 15 BAT 42C-08-07-95 @ 5547.4usft (treme 15)



Azimuths to True North
Magnetic North: 9.98°
Magnetic Field
Strength: 51936.3snT
Dip Angle: 65.63°
Date: 5/20/2014
Model: IGRF2010

Tompkins
BAT 42C-08-07-95
Design #1
18:25, May 20 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BAT 42C-08-07-95	4609.4	-2287.8	-97.1	1599954.56	2290175.99	39° 27' 13.244 N	108° 0' 50.860 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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1430.7	36.07	182.43	1363.9	-313.6	-13.3	3.50	182.43	313.9	
4	4253.5	36.07	182.43	3645.5	-1974.2	-83.8	0.00	0.00	1976.0	
5	5284.1	0.00	0.00	4609.4	-2287.8	-97.1	3.50	180.00	2289.9	BAT 42C-08-07-95 TGT
6	7598.7	0.00	0.00	6924.0	-2287.8	-97.1	0.00	0.00	2289.9	

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	Start Build 3.50
1364.0	1430.8	Start 2822.2 hold at 1430.8 MD
1700.0	1846.5	Surface Casing
3645.0	4253.0	Start Drop -3.50
4609.0	5283.8	Start 2315.0 hold at 5283.8 MD
4609.4	5284.2	Back to Vertical
6924.0	7598.8	TD at 7598.8

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3578.4	4170.5	Williams Fork	0.00	
4609.4	5284.1	Top of Gas	0.00	
6126.4	6801.1	Cameo	0.00	
6624.4	7299.1	Rollins	0.00	

