



Ursa Operating Company, LLC

Rockies Region

Tompkins

Tompkins 21C-08-07-95

Wellbore #1

Plan: Design #1

Standard Planning Report

29 January, 2015



Database:	MasterDB	Local Co-ordinate Reference:	Well Tompkins 21C-08-07-95
Company:	Ursa Operating Company, LLC	TVD Reference:	Tompkins 21C-08-07-95 @ 5547.0usft (PAD Est KB)
Project:	Rockies Region	MD Reference:	Tompkins 21C-08-07-95 @ 5547.0usft (PAD Est KB)
Site:	Tompkins	North Reference:	True
Well:	Tompkins 21C-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	Tompkins 21C-08-07-95, SHL LAT: 39.460030237 LONG: -108.014224118					
Well Position	+N/-S	0.3 usft	Northing:	1,602,267.80 usft	Latitude:	39° 27' 36.109 N
	+E/-W	-12.5 usft	Easting:	2,290,212.79 usft	Longitude:	108° 0' 51.207 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,547.0 usft	Ground Level:	5,532.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/29/2015	9.89	65.61	51,866

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	260.09	

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	
1,429.7	36.04	260.09	1,363.1	-53.9	-308.6	3.50	3.50	0.00	260.09	
4,978.7	36.04	260.09	4,232.9	-413.1	-2,365.5	0.00	0.00	0.00	0.00	
6,008.3	0.00	0.00	5,196.0	-467.0	-2,674.1	3.50	-3.50	0.00	180.00	
7,763.3	0.00	0.00	6,951.0	-467.0	-2,674.1	0.00	0.00	0.00	0.00	

Database:	MasterDB	Local Co-ordinate Reference:	Well Tompkins 21C-08-07-95
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Project:	Rockies Region	MD Reference:	Tompkins 21C-08-07-95 @ 5547.0usft (PAD Est KB)
Site:	Tompkins	North Reference:	True
Well:	Tompkins 21C-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	260.09	499.9	-0.5	-3.0	3.1	3.50	3.50	0.00
600.0	7.00	260.09	599.5	-2.1	-12.0	12.2	3.50	3.50	0.00
700.0	10.50	260.09	698.3	-4.7	-27.0	27.4	3.50	3.50	0.00
800.0	14.00	260.09	796.0	-8.4	-47.9	48.6	3.50	3.50	0.00
900.0	17.50	260.09	892.3	-13.0	-74.6	75.8	3.50	3.50	0.00
1,000.0	21.00	260.09	986.7	-18.7	-107.1	108.7	3.50	3.50	0.00
1,100.0	24.50	260.09	1,078.9	-25.4	-145.2	147.4	3.50	3.50	0.00
1,200.0	28.00	260.09	1,168.5	-33.0	-188.8	191.6	3.50	3.50	0.00
1,300.0	31.50	260.09	1,255.3	-41.5	-237.6	241.2	3.50	3.50	0.00
1,400.0	35.00	260.09	1,339.0	-50.9	-291.6	296.1	3.50	3.50	0.00
1,429.7	36.04	260.09	1,363.1	-53.9	-308.6	313.3	3.50	3.50	0.00
Start 3549.0 hold at 1429.7 MD									
1,500.0	36.04	260.09	1,420.0	-61.0	-349.4	354.7	0.00	0.00	0.00
1,600.0	36.04	260.09	1,500.8	-71.1	-407.3	413.5	0.00	0.00	0.00
1,700.0	36.04	260.09	1,581.7	-81.3	-465.3	472.3	0.00	0.00	0.00
1,800.0	36.04	260.09	1,662.6	-91.4	-523.2	531.2	0.00	0.00	0.00
1,846.3	36.04	260.09	1,700.0	-96.1	-550.1	558.4	0.00	0.00	0.00
Surface Casing									
1,900.0	36.04	260.09	1,743.4	-101.5	-581.2	590.0	0.00	0.00	0.00
2,000.0	36.04	260.09	1,824.3	-111.6	-639.2	648.8	0.00	0.00	0.00
2,100.0	36.04	260.09	1,905.1	-121.7	-697.1	707.7	0.00	0.00	0.00
2,200.0	36.04	260.09	1,986.0	-131.9	-755.1	766.5	0.00	0.00	0.00
2,300.0	36.04	260.09	2,066.9	-142.0	-813.0	825.3	0.00	0.00	0.00
2,400.0	36.04	260.09	2,147.7	-152.1	-871.0	884.2	0.00	0.00	0.00
2,500.0	36.04	260.09	2,228.6	-162.2	-928.9	943.0	0.00	0.00	0.00
2,600.0	36.04	260.09	2,309.5	-172.3	-986.9	1,001.8	0.00	0.00	0.00
2,700.0	36.04	260.09	2,390.3	-182.5	-1,044.9	1,060.7	0.00	0.00	0.00
2,800.0	36.04	260.09	2,471.2	-192.6	-1,102.8	1,119.5	0.00	0.00	0.00
2,900.0	36.04	260.09	2,552.0	-202.7	-1,160.8	1,178.3	0.00	0.00	0.00
3,000.0	36.04	260.09	2,632.9	-212.8	-1,218.7	1,237.2	0.00	0.00	0.00
3,100.0	36.04	260.09	2,713.8	-222.9	-1,276.7	1,296.0	0.00	0.00	0.00
3,200.0	36.04	260.09	2,794.6	-233.1	-1,334.6	1,354.8	0.00	0.00	0.00
3,300.0	36.04	260.09	2,875.5	-243.2	-1,392.6	1,413.7	0.00	0.00	0.00
3,400.0	36.04	260.09	2,956.4	-253.3	-1,450.5	1,472.5	0.00	0.00	0.00
3,500.0	36.04	260.09	3,037.2	-263.4	-1,508.5	1,531.3	0.00	0.00	0.00
3,600.0	36.04	260.09	3,118.1	-273.5	-1,566.5	1,590.2	0.00	0.00	0.00
3,700.0	36.04	260.09	3,198.9	-283.7	-1,624.4	1,649.0	0.00	0.00	0.00
3,800.0	36.04	260.09	3,279.8	-293.8	-1,682.4	1,707.8	0.00	0.00	0.00
3,900.0	36.04	260.09	3,360.7	-303.9	-1,740.3	1,766.7	0.00	0.00	0.00
4,000.0	36.04	260.09	3,441.5	-314.0	-1,798.3	1,825.5	0.00	0.00	0.00
4,100.0	36.04	260.09	3,522.4	-324.1	-1,856.2	1,884.3	0.00	0.00	0.00
4,200.0	36.04	260.09	3,603.2	-334.3	-1,914.2	1,943.2	0.00	0.00	0.00
4,202.2	36.04	260.09	3,605.0	-334.5	-1,915.5	1,944.4	0.00	0.00	0.00
Williams Fork									
4,300.0	36.04	260.09	3,684.1	-344.4	-1,972.2	2,002.0	0.00	0.00	0.00
4,400.0	36.04	260.09	3,765.0	-354.5	-2,030.1	2,060.8	0.00	0.00	0.00

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Well:	Tompkins 21C-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)
4,500.0	36.04	260.09	3,845.8	-364.6	-2,088.1	2,119.7	0.00	0.00	0.00
4,600.0	36.04	260.09	3,926.7	-374.7	-2,146.0	2,178.5	0.00	0.00	0.00
4,700.0	36.04	260.09	4,007.6	-384.9	-2,204.0	2,237.3	0.00	0.00	0.00
4,800.0	36.04	260.09	4,088.4	-395.0	-2,261.9	2,296.2	0.00	0.00	0.00
4,900.0	36.04	260.09	4,169.3	-405.1	-2,319.9	2,355.0	0.00	0.00	0.00
4,978.7	36.04	260.09	4,232.9	-413.1	-2,365.5	2,401.3	0.00	0.00	0.00
Start Drop -3.50									
5,000.0	35.29	260.09	4,250.2	-415.2	-2,377.7	2,413.7	3.50	-3.50	0.00
5,100.0	31.79	260.09	4,333.6	-424.7	-2,432.2	2,469.0	3.50	-3.50	0.00
5,200.0	28.29	260.09	4,420.1	-433.3	-2,481.5	2,519.0	3.50	-3.50	0.00
5,300.0	24.79	260.09	4,509.6	-441.0	-2,525.5	2,563.7	3.50	-3.50	0.00
5,400.0	21.29	260.09	4,601.6	-447.7	-2,564.0	2,602.8	3.50	-3.50	0.00
5,436.8	20.00	260.09	4,636.0	-450.0	-2,576.8	2,615.8	3.50	-3.50	0.00
Top of Gas									
5,500.0	17.79	260.09	4,695.8	-453.5	-2,597.0	2,636.3	3.50	-3.50	0.00
5,600.0	14.29	260.09	4,791.9	-458.2	-2,624.2	2,663.9	3.50	-3.50	0.00
5,700.0	10.79	260.09	4,889.5	-462.0	-2,645.6	2,685.6	3.50	-3.50	0.00
5,800.0	7.29	260.09	4,988.2	-464.7	-2,661.1	2,701.3	3.50	-3.50	0.00
5,900.0	3.79	260.09	5,087.7	-466.3	-2,670.6	2,711.0	3.50	-3.50	0.00
6,008.3	0.00	0.00	5,196.0	-467.0	-2,674.1	2,714.6	3.50	-3.50	0.00
Start 1755.0 hold at 6008.3 MD - Back to Vertical									
6,100.0	0.00	0.00	5,287.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
6,200.0	0.00	0.00	5,387.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
6,300.0	0.00	0.00	5,487.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
6,400.0	0.00	0.00	5,587.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
6,500.0	0.00	0.00	5,687.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
6,600.0	0.00	0.00	5,787.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
6,700.0	0.00	0.00	5,887.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
6,800.0	0.00	0.00	5,987.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
6,900.0	0.00	0.00	6,087.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
6,965.3	0.00	0.00	6,153.0	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
Cameo									
7,000.0	0.00	0.00	6,187.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
7,100.0	0.00	0.00	6,287.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
7,200.0	0.00	0.00	6,387.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
7,300.0	0.00	0.00	6,487.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
7,400.0	0.00	0.00	6,587.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
7,465.3	0.00	0.00	6,653.0	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
Rollins									
7,500.0	0.00	0.00	6,687.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
7,600.0	0.00	0.00	6,787.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
7,700.0	0.00	0.00	6,887.7	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
7,763.3	0.00	0.00	6,951.0	-467.0	-2,674.1	2,714.6	0.00	0.00	0.00
TD at 7763.3									

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Project:	Rockies Region	MD Reference:	Tompkins 21C-08-07-95 @ 5547.0usft (PAD Est KB)
Site:	Tompkins	North Reference:	True
Well:	Tompkins 21C-08-07-95	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
21C-08-07-95 TGT	0.00	0.00	4,636.0	-467.0	-2,674.1	1,601,875.01	2,287,526.79	39° 27' 31.492 N	108° 1' 25.302 W
- plan misses target center by 93.1usft at 5468.8usft MD (4666.2 TVD, -451.8 N, -2587.3 E)									
- Rectangle (sides W100.0 H40.0 D2,315.0)									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,202.2	3,605.0	Williams Fork		0.00	
5,436.8	4,636.0	Top of Gas		0.00	
6,965.3	6,153.0	Cameo		0.00	
7,465.3	6,653.0	Rollins		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
400.0	400.0	0.0	0.0	Start Build 3.50
1,429.7	1,363.1	-53.9	-308.6	Start 3549.0 hold at 1429.7 MD
1,846.3	1,700.0	-96.1	-550.1	Surface Casing
4,978.7	4,232.9	-413.1	-2,365.5	Start Drop -3.50
6,008.3	5,196.0	-467.0	-2,674.1	Start 1755.0 hold at 6008.3 MD
6,008.3	5,196.0	-467.0	-2,674.1	Back to Vertical
7,763.3	6,951.0	-467.0	-2,674.1	TD at 7763.3



Well Name: Tompkins 21C-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 1602267.80 2290212.79 39° 27' 36.109 N 108° 0' 51.207 W
PAD Est KB Tompkins 21C-08-07-95 @ 5547.0usft (PAD Est KB)



Azimuths to True North
Magnetic North: 9.89°
Magnetic Field
Strength: 51866.2snT
Dip Angle: 65.61°
Date: 1/29/2015
Model: IGRF2010

Tompkins
Tompkins 21C-08-07-95
Design #1
19:36, January 29 2015

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
21C-08-07-95 TGT4636.0		-467.0	-2674.1	1601875.02	2287526.79	39° 27' 31.492 N	108° 1' 25.302 W	Rectangle (Sides: L40.0 W100.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	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	1429.7	36.04	260.09	1363.1	-53.9	-308.6	3.50	260.09	313.3	
4	4978.7	36.04	260.09	4232.9	-413.1	-2365.5	0.00	0.00	2401.3	
5	6008.3	0.00	0.00	5196.0	-467.0	-2674.1	3.50	180.00	2714.6	
6	7763.3	0.00	0.00	6951.0	-467.0	-2674.1	0.00	0.00	2714.6	

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	Start Build 3.50
1363.1	1429.7	Start 3549.0 hold at 1429.7 MD
1700.0	1846.3	Surface Casing
4232.9	4978.7	Start Drop -3.50
5196.0	6008.3	Start 1755.0 hold at 6008.3 MD
5196.0	6008.3	Back to Vertical
6951.0	7763.3	TD at 7763.3

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3605.0	4202.2	Williams Fork	0.00	
4636.0	5436.8	Top of Gas	0.00	
6153.0	6965.3	Cameo	0.00	
6653.0	7465.3	Rollins	0.00	

