



Ursa Operating Company, LLC

Rockies Region

Tompkins

Tompkins 21B-08-07-95

Wellbore #1

Plan: Design #1

Standard Planning Report

29 January, 2015



Database:	MasterDB	Local Co-ordinate Reference:	Well Tompkins 21B-08-07-95
Company:	Ursa Operating Company, LLC	TVD Reference:	Tompkins 21B-08-07-95 @ 5547.0usft (PAD Est KB)
Project:	Rockies Region	MD Reference:	Tompkins 21B-08-07-95 @ 5547.0usft (PAD Est KB)
Site:	Tompkins	North Reference:	True
Well:	Tompkins 21B-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 21B-08-07-95, SHL LAT: 39.460031077 LONG: -108.014268356					
Well Position	+N/-S	0.6 usft	Northing:	1,602,268.44 usft	Latitude:	39° 27' 36.112 N
	+E/-W	-25.0 usft	Easting:	2,290,200.32 usft	Longitude:	108° 0' 51.366 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	253.29	

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	
1,447.4	36.66	253.29	1,377.4	-93.1	-310.1	3.50	3.50	0.00	253.29	
5,006.6	36.66	253.29	4,232.6	-704.0	-2,345.5	0.00	0.00	0.00	0.00	
6,054.0	0.00	0.00	5,210.0	-797.1	-2,655.6	3.50	-3.50	0.00	180.00	
7,809.0	0.00	0.00	6,965.0	-797.1	-2,655.6	0.00	0.00	0.00	0.00	

Database:	MasterDB	Local Co-ordinate Reference:	Well Tompkins 21B-08-07-95
Company:	Ursa Operating Company, LLC	TVD Reference:	Tompkins 21B-08-07-95 @ 5547.0usft (PAD Est KB)
Project:	Rockies Region	MD Reference:	Tompkins 21B-08-07-95 @ 5547.0usft (PAD Est KB)
Site:	Tompkins	North Reference:	True
Well:	Tompkins 21B-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	253.29	499.9	-0.9	-2.9	3.1	3.50	3.50	0.00
600.0	7.00	253.29	599.5	-3.5	-11.7	12.2	3.50	3.50	0.00
700.0	10.50	253.29	698.3	-7.9	-26.3	27.4	3.50	3.50	0.00
800.0	14.00	253.29	796.0	-14.0	-46.6	48.6	3.50	3.50	0.00
900.0	17.50	253.29	892.3	-21.8	-72.6	75.8	3.50	3.50	0.00
1,000.0	21.00	253.29	986.7	-31.3	-104.1	108.7	3.50	3.50	0.00
1,100.0	24.50	253.29	1,078.9	-42.4	-141.2	147.4	3.50	3.50	0.00
1,200.0	28.00	253.29	1,168.5	-55.1	-183.5	191.6	3.50	3.50	0.00
1,300.0	31.50	253.29	1,255.3	-69.3	-231.0	241.2	3.50	3.50	0.00
1,400.0	35.00	253.29	1,339.0	-85.1	-283.6	296.1	3.50	3.50	0.00
1,447.4	36.66	253.29	1,377.4	-93.1	-310.1	323.8	3.50	3.50	0.00
Start 3559.2 hold at 1447.4 MD									
1,500.0	36.66	253.29	1,419.6	-102.1	-340.2	355.2	0.00	0.00	0.00
1,600.0	36.66	253.29	1,499.8	-119.3	-397.4	414.9	0.00	0.00	0.00
1,700.0	36.66	253.29	1,580.0	-136.4	-454.6	474.6	0.00	0.00	0.00
1,800.0	36.66	253.29	1,660.2	-153.6	-511.8	534.3	0.00	0.00	0.00
1,849.6	36.66	253.29	1,700.0	-162.1	-540.1	563.9	0.00	0.00	0.00
Surface Casing									
1,900.0	36.66	253.29	1,740.5	-170.8	-568.9	594.0	0.00	0.00	0.00
2,000.0	36.66	253.29	1,820.7	-187.9	-626.1	653.7	0.00	0.00	0.00
2,100.0	36.66	253.29	1,900.9	-205.1	-683.3	713.4	0.00	0.00	0.00
2,200.0	36.66	253.29	1,981.1	-222.3	-740.5	773.1	0.00	0.00	0.00
2,300.0	36.66	253.29	2,061.3	-239.4	-797.7	832.8	0.00	0.00	0.00
2,400.0	36.66	253.29	2,141.6	-256.6	-854.9	892.5	0.00	0.00	0.00
2,500.0	36.66	253.29	2,221.8	-273.8	-912.1	952.2	0.00	0.00	0.00
2,600.0	36.66	253.29	2,302.0	-290.9	-969.2	1,012.0	0.00	0.00	0.00
2,700.0	36.66	253.29	2,382.2	-308.1	-1,026.4	1,071.7	0.00	0.00	0.00
2,800.0	36.66	253.29	2,462.4	-325.2	-1,083.6	1,131.4	0.00	0.00	0.00
2,900.0	36.66	253.29	2,542.7	-342.4	-1,140.8	1,191.1	0.00	0.00	0.00
3,000.0	36.66	253.29	2,622.9	-359.6	-1,198.0	1,250.8	0.00	0.00	0.00
3,100.0	36.66	253.29	2,703.1	-376.7	-1,255.2	1,310.5	0.00	0.00	0.00
3,200.0	36.66	253.29	2,783.3	-393.9	-1,312.3	1,370.2	0.00	0.00	0.00
3,300.0	36.66	253.29	2,863.6	-411.1	-1,369.5	1,429.9	0.00	0.00	0.00
3,400.0	36.66	253.29	2,943.8	-428.2	-1,426.7	1,489.6	0.00	0.00	0.00
3,500.0	36.66	253.29	3,024.0	-445.4	-1,483.9	1,549.3	0.00	0.00	0.00
3,600.0	36.66	253.29	3,104.2	-462.6	-1,541.1	1,609.0	0.00	0.00	0.00
3,700.0	36.66	253.29	3,184.4	-479.7	-1,598.3	1,668.7	0.00	0.00	0.00
3,800.0	36.66	253.29	3,264.7	-496.9	-1,655.4	1,728.4	0.00	0.00	0.00
3,900.0	36.66	253.29	3,344.9	-514.1	-1,712.6	1,788.1	0.00	0.00	0.00
4,000.0	36.66	253.29	3,425.1	-531.2	-1,769.8	1,847.8	0.00	0.00	0.00
4,100.0	36.66	253.29	3,505.3	-548.4	-1,827.0	1,907.5	0.00	0.00	0.00
4,200.0	36.66	253.29	3,585.5	-565.5	-1,884.2	1,967.2	0.00	0.00	0.00
4,241.7	36.66	253.29	3,619.0	-572.7	-1,908.0	1,992.1	0.00	0.00	0.00
Williams Fork									
4,300.0	36.66	253.29	3,665.8	-582.7	-1,941.4	2,026.9	0.00	0.00	0.00
4,400.0	36.66	253.29	3,746.0	-599.9	-1,998.6	2,086.6	0.00	0.00	0.00

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Site:	Tompkins	North Reference:	True
Well:	Tompkins 21B-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	36.66	253.29	3,826.2	-617.0	-2,055.7	2,146.3	0.00	0.00	0.00
4,600.0	36.66	253.29	3,906.4	-634.2	-2,112.9	2,206.0	0.00	0.00	0.00
4,700.0	36.66	253.29	3,986.6	-651.4	-2,170.1	2,265.8	0.00	0.00	0.00
4,800.0	36.66	253.29	4,066.9	-668.5	-2,227.3	2,325.5	0.00	0.00	0.00
4,900.0	36.66	253.29	4,147.1	-685.7	-2,284.5	2,385.2	0.00	0.00	0.00
5,006.6	36.66	253.29	4,232.6	-704.0	-2,345.5	2,448.8	0.00	0.00	0.00
Start Drop -3.50									
5,100.0	33.39	253.29	4,309.1	-719.4	-2,396.8	2,502.4	3.50	-3.50	0.00
5,200.0	29.89	253.29	4,394.2	-734.5	-2,447.0	2,554.9	3.50	-3.50	0.00
5,300.0	26.39	253.29	4,482.4	-748.0	-2,492.2	2,602.0	3.50	-3.50	0.00
5,400.0	22.89	253.29	4,573.2	-760.0	-2,532.1	2,643.7	3.50	-3.50	0.00
5,482.5	20.00	253.29	4,650.0	-768.7	-2,561.0	2,673.9	3.50	-3.50	0.00
Top of Gas									
5,500.0	19.39	253.29	4,666.5	-770.4	-2,566.6	2,679.8	3.50	-3.50	0.00
5,600.0	15.89	253.29	4,761.8	-779.1	-2,595.7	2,710.1	3.50	-3.50	0.00
5,700.0	12.39	253.29	4,858.7	-786.1	-2,619.1	2,734.5	3.50	-3.50	0.00
5,800.0	8.89	253.29	4,957.0	-791.4	-2,636.7	2,752.9	3.50	-3.50	0.00
5,900.0	5.39	253.29	5,056.2	-795.0	-2,648.6	2,765.4	3.50	-3.50	0.00
6,000.0	1.89	253.29	5,156.0	-796.8	-2,654.7	2,771.7	3.50	-3.50	0.00
6,054.0	0.00	0.00	5,210.0	-797.1	-2,655.6	2,772.6	3.50	-3.50	0.00
Start 1755.0 hold at 6054.0 MD - Back to Vertical									
6,100.0	0.00	0.00	5,256.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
6,200.0	0.00	0.00	5,356.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
6,300.0	0.00	0.00	5,456.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
6,400.0	0.00	0.00	5,556.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
6,500.0	0.00	0.00	5,656.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
6,600.0	0.00	0.00	5,756.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
6,700.0	0.00	0.00	5,856.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
6,800.0	0.00	0.00	5,956.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
6,900.0	0.00	0.00	6,056.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
7,000.0	0.00	0.00	6,156.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
7,011.0	0.00	0.00	6,167.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
Cameo									
7,100.0	0.00	0.00	6,256.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
7,200.0	0.00	0.00	6,356.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
7,300.0	0.00	0.00	6,456.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
7,400.0	0.00	0.00	6,556.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
7,500.0	0.00	0.00	6,656.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
7,511.0	0.00	0.00	6,667.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
Rollins									
7,600.0	0.00	0.00	6,756.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
7,700.0	0.00	0.00	6,856.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
7,809.0	0.00	0.00	6,965.0	-797.1	-2,655.6	2,772.6	0.00	0.00	0.00
TD at 7809.0									

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

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
21B-08-07-95	0.00	0.00	4,650.0	-797.1	-2,655.6	1,601,545.15	2,287,523.70	39° 27' 28.232 N	108° 1' 25.225 W
- plan misses target center by 93.2usft at 5512.4usft MD (4678.2 TVD, -771.6 N, -2570.5 E)									
- Rectangle (sides W100.0 H40.0 D2,315.0)									

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
4,241.7	3,619.0	Williams Fork		0.00	
5,482.5	4,650.0	Top of Gas		0.00	
7,011.0	6,167.0	Cameo		0.00	
7,511.0	6,667.0	Rollins		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
400.0	400.0	0.0	0.0	Start Build 3.50
1,447.4	1,377.4	-93.1	-310.1	Start 3559.2 hold at 1447.4 MD
1,849.6	1,700.0	-162.1	-540.1	Surface Casing
5,006.6	4,232.6	-704.0	-2,345.5	Start Drop -3.50
6,054.0	5,210.0	-797.1	-2,655.6	Start 1755.0 hold at 6054.0 MD
6,054.0	5,210.0	-797.1	-2,655.6	Back to Vertical
7,809.0	6,965.0	-797.1	-2,655.6	TD at 7809.0



Well Name: Tompkins 21B-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 1602268.45 2290200.32 39° 27' 36.112 N 108° 0' 51.366 W
PAD Est KB Tompkins 21B-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 21B-08-07-95
Design #1
19:54, January 29 2015

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
21B-08-07-95	4650.0	-797.1	-2655.6	1601545.16	2287523.70	39° 27' 28.232 N	108° 1' 25.225 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	1447.4	36.66	253.29	1377.4	-93.1	-310.1	3.50	253.29	323.8	
4	5006.6	36.66	253.29	4232.6	-704.0	-2345.5	0.00	0.00	2448.8	
5	6054.0	0.00	0.00	5210.0	-797.1	-2655.6	3.50	180.00	2772.6	
6	7809.0	0.00	0.00	6965.0	-797.1	-2655.6	0.00	0.00	2772.6	

ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	Start Build 3.50
1377.4	1447.4	Start 3559.2 hold at 1447.4 MD
1700.0	1849.6	Surface Casing
4232.6	5006.6	Start Drop -3.50
5210.0	6054.0	Start 1755.0 hold at 6054.0 MD
5210.0	6054.0	Back to Vertical
6965.0	7809.0	TD at 7809.0

FORMATION TOP DETAILS

TVDPPath	MDPath	Formation	DipAngle	DipDir
3619.0	4241.7	Williams Fork	0.00	
4650.0	5482.5	Top of Gas	0.00	
6167.0	7011.0	Cameo	0.00	
6667.0	7511.0	Rollins	0.00	

