



Ursa Operating Company, LLC

Rockies Region

Tompkins

Tompkins 21A-08-07-95

Wellbore #1

Design: Actual

End Of Well Report

22 July, 2016



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well Tompkins 21A-08-07-95
Project:	Rockies Region	TVD Reference:	Tompkins 21A-08-07-95 @ 5549.0usft (Capstar 321)
Site:	Tompkins	MD Reference:	Tompkins 21A-08-07-95 @ 5549.0usft (Capstar 321)
Well:	Tompkins 21A-08-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	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	Tompkins		
Site Position:		Northing:	1,602,267.16 usft
From:	Lat/Long	Easting:	2,290,225.27 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	39° 27' 36.106 N
		Longitude:	108° 0' 51.048 W
		Grid Convergence:	-1.59 °

Well	Tompkins 21A-08-07-95, SHL: 39.460031918 -108.014312594					
Well Position	+N/-S	0.0 usft	Northing:	1,602,269.09 usft	Latitude:	39° 27' 36.115 N
	+E/-W	0.0 usft	Easting:	2,290,187.84 usft	Longitude:	108° 0' 51.525 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,549.0 usft	Ground Level:	5,532.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/8/2016	9.81	65.57	51,625

Design	Actual				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	259.66	

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Design:	Actual	Database:	MasterDB

Survey Program	Date									
	7/22/2016									
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description						
110.0	1,815.0	Surface (Wellbore #1)	MWD	MWD - Standard						
1,914.0	7,646.0	Production (Wellbore #1)	MWD	MWD - Standard						

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
110.0	0.53	240.70	110.0	0.5	-0.2	-0.4	0.48	0.48	0.00
139.0	1.01	233.67	139.0	0.8	-0.5	-0.8	1.68	1.66	-24.24
170.0	1.36	246.06	170.0	1.4	-0.8	-1.3	1.39	1.13	39.97
201.0	2.24	258.89	201.0	2.4	-1.0	-2.3	3.10	2.84	41.39
230.0	2.42	261.66	229.9	3.6	-1.2	-3.4	0.73	0.62	9.55
261.0	2.72	259.33	260.9	5.0	-1.5	-4.8	1.02	0.97	-7.52
291.0	2.86	262.41	290.9	6.4	-1.7	-6.2	0.68	0.47	10.27
322.0	2.77	260.21	321.8	8.0	-1.9	-7.7	0.45	-0.29	-7.10
353.0	2.90	263.46	352.8	9.5	-2.1	-9.2	0.67	0.42	10.48
383.0	2.90	260.39	382.8	11.0	-2.4	-10.8	0.52	0.00	-10.23
414.0	3.07	263.33	413.7	12.6	-2.6	-12.3	0.74	0.55	9.48
444.0	3.16	262.72	443.7	14.2	-2.8	-14.0	0.32	0.30	-2.03
475.0	3.78	265.62	474.6	16.1	-3.0	-15.8	2.08	2.00	9.35
505.0	4.53	267.37	504.5	18.3	-3.1	-18.0	2.54	2.50	5.83
536.0	5.01	267.90	535.4	20.8	-3.2	-20.6	1.55	1.55	1.71
567.0	5.88	267.82	566.3	23.7	-3.3	-23.5	2.81	2.81	-0.26
597.0	6.90	265.57	596.1	27.0	-3.5	-26.9	3.50	3.40	-7.50
627.0	7.82	260.87	625.9	30.9	-4.0	-30.7	3.66	3.07	-15.67
657.0	8.70	259.33	655.6	35.2	-4.7	-34.9	3.02	2.93	-5.13
688.0	9.62	258.36	686.2	40.1	-5.7	-39.7	3.01	2.97	-3.13

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Well: Tompkins 21A-08-07-95	North Reference: True
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Actual	Database: MasterDB

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
718.0	10.72	256.08	715.7	45.4	-6.9	-44.9	3.90	3.67	-7.60	
749.0	11.95	257.05	746.1	51.5	-8.3	-50.8	4.01	3.97	3.13	
780.0	13.05	261.42	776.3	58.2	-9.5	-57.4	4.68	3.55	14.10	
809.0	14.24	261.05	804.5	65.0	-10.6	-64.2	4.11	4.10	-1.28	
840.0	15.42	261.79	834.5	73.0	-11.7	-72.0	3.86	3.81	2.39	
883.0	17.45	262.80	875.7	85.1	-13.4	-84.1	4.77	4.72	2.35	
925.0	19.03	262.94	915.6	98.2	-15.0	-97.1	3.76	3.76	0.33	
968.0	20.43	260.96	956.1	112.8	-17.0	-111.5	3.61	3.26	-4.60	
1,011.0	21.53	259.46	996.2	128.1	-19.7	-126.7	2.85	2.56	-3.49	
1,054.0	22.63	260.43	1,036.1	144.3	-22.5	-142.6	2.69	2.56	2.26	
1,096.0	23.60	258.89	1,074.7	160.8	-25.4	-158.8	2.72	2.31	-3.67	
1,139.0	24.74	259.51	1,114.0	178.4	-28.7	-176.1	2.72	2.65	1.44	
1,182.0	26.05	259.62	1,152.8	196.8	-32.1	-194.2	3.05	3.05	0.26	
1,224.0	27.60	260.56	1,190.3	215.8	-35.3	-212.9	3.83	3.69	2.24	
1,267.0	29.55	261.24	1,228.0	236.4	-38.6	-233.2	4.60	4.53	1.58	
1,310.0	30.89	260.74	1,265.2	258.0	-42.0	-254.6	3.17	3.12	-1.16	
1,353.0	32.71	261.84	1,301.7	280.6	-45.4	-277.0	4.44	4.23	2.56	
1,395.0	34.27	262.91	1,336.8	303.8	-48.5	-300.0	3.97	3.71	2.55	
1,438.0	35.42	261.13	1,372.1	328.3	-51.9	-324.3	3.57	2.67	-4.14	
1,481.0	36.56	261.48	1,406.8	353.6	-55.7	-349.3	2.69	2.65	0.81	
1,524.0	36.74	260.43	1,441.3	379.2	-59.7	-374.6	1.52	0.42	-2.44	
1,566.0	36.69	259.24	1,475.0	404.4	-64.2	-399.3	1.70	-0.12	-2.83	
1,609.0	36.87	257.88	1,509.5	430.1	-69.3	-424.6	1.94	0.42	-3.16	
1,652.0	36.61	256.43	1,543.9	455.8	-75.0	-449.6	2.11	-0.60	-3.37	
1,694.0	36.61	256.39	1,577.6	480.8	-80.9	-474.0	0.06	0.00	-0.10	
1,737.0	36.78	256.83	1,612.1	506.5	-86.8	-499.0	0.73	0.40	1.02	
1,780.0	36.69	256.30	1,646.6	532.1	-92.8	-524.0	0.77	-0.21	-1.23	

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Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
1,815.0	37.04	256.99	1,674.6	553.1	-97.7	-544.4	1.55	1.00	1.97	
Last PZD Surface Survey										
1,914.0	35.93	254.89	1,754.2	611.8	-111.9	-601.5	1.69	-1.12	-2.12	
1,999.0	36.21	257.49	1,822.9	661.8	-123.9	-650.1	1.83	0.33	3.06	
2,085.0	36.83	260.21	1,892.0	712.9	-133.8	-700.3	2.02	0.72	3.16	
2,170.0	37.92	261.00	1,959.5	764.5	-142.2	-751.2	1.40	1.28	0.93	
2,256.0	38.36	259.51	2,027.2	817.6	-151.2	-803.6	1.19	0.51	-1.73	
2,341.0	38.23	262.01	2,093.9	870.3	-159.6	-855.5	1.83	-0.15	2.94	
2,427.0	37.79	259.73	2,161.7	923.2	-168.0	-907.8	1.71	-0.51	-2.65	
2,512.0	36.96	260.34	2,229.2	974.8	-177.0	-958.6	1.07	-0.98	0.72	
2,597.0	37.92	261.31	2,296.7	1,026.5	-185.2	-1,009.6	1.33	1.13	1.14	
2,683.0	38.52	264.36	2,364.3	1,079.6	-191.8	-1,062.4	2.30	0.70	3.55	
2,768.0	37.97	263.24	2,431.0	1,132.1	-197.5	-1,114.7	1.04	-0.65	-1.32	
2,854.0	37.63	263.48	2,499.0	1,184.7	-203.6	-1,167.1	0.43	-0.40	0.28	
2,939.0	36.78	263.15	2,566.7	1,236.0	-209.6	-1,218.1	1.03	-1.00	-0.39	
3,025.0	36.91	262.45	2,635.5	1,287.5	-216.0	-1,269.3	0.51	0.15	-0.81	
3,110.0	36.61	259.64	2,703.6	1,338.3	-224.0	-1,319.5	2.01	-0.35	-3.31	
3,196.0	36.78	258.89	2,772.6	1,389.7	-233.5	-1,370.0	0.56	0.20	-0.87	
3,281.0	37.35	259.38	2,840.4	1,440.9	-243.2	-1,420.3	0.76	0.67	0.58	
3,366.0	36.34	259.81	2,908.4	1,491.9	-252.4	-1,470.5	1.23	-1.19	0.51	
3,452.0	36.83	258.50	2,977.5	1,543.1	-262.0	-1,520.8	1.07	0.57	-1.52	
3,537.0	36.87	258.28	3,045.5	1,594.1	-272.3	-1,570.7	0.16	0.05	-0.26	
3,622.0	37.41	259.16	3,113.2	1,645.4	-282.3	-1,621.1	0.89	0.64	1.04	
3,707.0	38.14	259.51	3,180.4	1,697.5	-292.0	-1,672.2	0.90	0.86	0.41	
3,793.0	37.27	260.69	3,248.5	1,750.1	-301.0	-1,724.1	1.31	-1.01	1.37	
3,878.0	37.84	259.99	3,315.9	1,801.9	-309.7	-1,775.1	0.84	0.67	-0.82	
3,964.0	37.00	258.28	3,384.2	1,854.1	-319.6	-1,826.4	1.55	-0.98	-1.99	

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4,049.0	37.31	258.32	3,451.9	1,905.5	-330.0	-1,876.7	0.37	0.36	0.05	
4,134.0	37.09	259.51	3,519.6	1,956.8	-339.8	-1,927.1	0.89	-0.26	1.40	
4,219.0	37.84	261.57	3,587.1	2,008.5	-348.3	-1,978.1	1.72	0.88	2.42	
4,305.0	36.08	259.24	3,655.8	2,060.2	-356.9	-2,029.1	2.62	-2.05	-2.71	
4,390.0	37.18	262.19	3,724.0	2,110.9	-365.1	-2,079.2	2.44	1.29	3.47	
4,475.0	36.34	262.41	3,792.1	2,161.7	-371.9	-2,129.6	1.00	-0.99	0.26	
4,561.0	34.28	261.13	3,862.3	2,211.4	-379.0	-2,178.8	2.55	-2.40	-1.49	
4,646.0	32.15	261.98	3,933.4	2,257.9	-385.9	-2,224.8	2.57	-2.51	1.00	
4,731.0	32.08	260.96	4,005.4	2,303.1	-392.6	-2,269.5	0.64	-0.08	-1.20	
4,817.0	29.88	258.45	4,079.1	2,347.4	-400.4	-2,313.0	2.97	-2.56	-2.92	
4,902.0	29.14	258.45	4,153.1	2,389.2	-408.8	-2,354.1	0.87	-0.87	0.00	
4,988.0	26.67	259.51	4,229.1	2,429.5	-416.5	-2,393.6	2.93	-2.87	1.23	
5,073.0	24.95	257.21	4,305.6	2,466.4	-424.0	-2,429.8	2.34	-2.02	-2.71	
5,158.0	23.16	257.18	4,383.2	2,501.1	-431.7	-2,463.6	2.11	-2.11	-0.04	
5,244.0	20.20	257.79	4,463.1	2,532.8	-438.5	-2,494.6	3.45	-3.44	0.71	
5,329.0	18.24	260.21	4,543.4	2,560.8	-443.9	-2,522.1	2.49	-2.31	2.85	
5,414.0	16.30	258.89	4,624.6	2,586.0	-448.5	-2,546.9	2.33	-2.28	-1.55	
5,500.0	14.06	261.13	4,707.5	2,608.5	-452.4	-2,569.0	2.69	-2.60	2.60	
5,585.0	11.16	262.98	4,790.5	2,627.1	-455.0	-2,587.4	3.44	-3.41	2.18	
5,671.0	8.79	263.37	4,875.2	2,641.9	-456.8	-2,602.2	2.76	-2.76	0.45	
5,757.0	6.55	258.58	4,960.4	2,653.4	-458.5	-2,613.5	2.71	-2.60	-5.57	
5,842.0	4.92	258.19	5,045.0	2,661.9	-460.2	-2,621.9	1.92	-1.92	-0.46	
5,928.0	2.86	259.73	5,130.8	2,667.7	-461.4	-2,627.6	2.40	-2.40	1.79	
6,013.0	0.99	292.95	5,215.7	2,670.4	-461.4	-2,630.3	2.47	-2.20	39.08	
6,098.0	0.31	247.60	5,300.7	2,671.3	-461.2	-2,631.2	0.94	-0.80	-53.35	
6,184.0	0.35	358.87	5,386.7	2,671.5	-461.1	-2,631.5	0.63	0.05	129.38	
6,269.0	0.31	28.18	5,471.7	2,671.3	-460.6	-2,631.3	0.20	-0.05	34.48	

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6,355.0	0.22	38.37	5,557.7	2,671.0	-460.3	-2,631.1	0.12	-0.10	11.85		
6,440.0	0.53	143.93	5,642.7	2,670.7	-460.5	-2,630.8	0.74	0.36	124.19		
6,525.0	1.24	142.27	5,727.7	2,670.1	-461.5	-2,630.0	0.84	0.84	-1.95		
6,611.0	0.97	120.60	5,813.7	2,669.2	-462.6	-2,628.8	0.57	-0.31	-25.20		
6,696.0	1.01	110.58	5,898.7	2,668.0	-463.2	-2,627.5	0.21	0.05	-11.79		
6,781.0	0.62	130.48	5,983.7	2,667.0	-463.8	-2,626.4	0.56	-0.46	23.41		
6,867.0	0.56	121.93	6,069.7	2,666.4	-464.3	-2,625.7	0.12	-0.07	-9.94		
6,952.0	0.92	116.73	6,154.7	2,665.6	-464.9	-2,624.8	0.43	0.42	-6.12		
7,038.0	1.19	107.10	6,240.6	2,664.2	-465.4	-2,623.3	0.37	0.31	-11.20		
7,123.0	1.19	319.23	6,325.6	2,663.9	-465.0	-2,623.0	2.69	0.00	-173.96		
7,209.0	1.23	308.51	6,411.6	2,665.0	-463.8	-2,624.3	0.27	0.05	-12.47		
7,294.0	1.45	298.44	6,496.6	2,666.4	-462.7	-2,626.0	0.38	0.26	-11.85		
7,379.0	1.14	272.72	6,581.6	2,668.1	-462.1	-2,627.8	0.77	-0.36	-30.26		
7,465.0	1.05	258.10	6,667.6	2,669.7	-462.3	-2,629.4	0.34	-0.10	-17.00		
7,550.0	0.97	262.73	6,752.5	2,671.2	-462.5	-2,630.9	0.13	-0.09	5.45		
7,591.0	0.90	255.42	6,793.5	2,671.8	-462.6	-2,631.5	0.34	-0.17	-17.83		
Last PZD Survey											
7,646.0	0.90	255.42	6,848.5	2,672.7	-462.9	-2,632.4	0.00	0.00	0.00		
Striaght Line Projection to TD											

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,815.0	1,674.6	-97.7	-544.4	Last PZD Surface Survey	
7,591.0	6,793.5	-462.6	-2,631.5	Last PZD Survey	
7,646.0	6,848.5	-462.9	-2,632.4	Striaght Line Projection to TD	

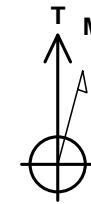
Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well Tompkins 21A-08-07-95
Project:	Rockies Region	TVD Reference:	Tompkins 21A-08-07-95 @ 5549.0usft (Capstar 321)
Site:	Tompkins	MD Reference:	Tompkins 21A-08-07-95 @ 5549.0usft (Capstar 321)
Well:	Tompkins 21A-08-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	MasterDB

Checked By: _____ Approved By: _____ Date: _____



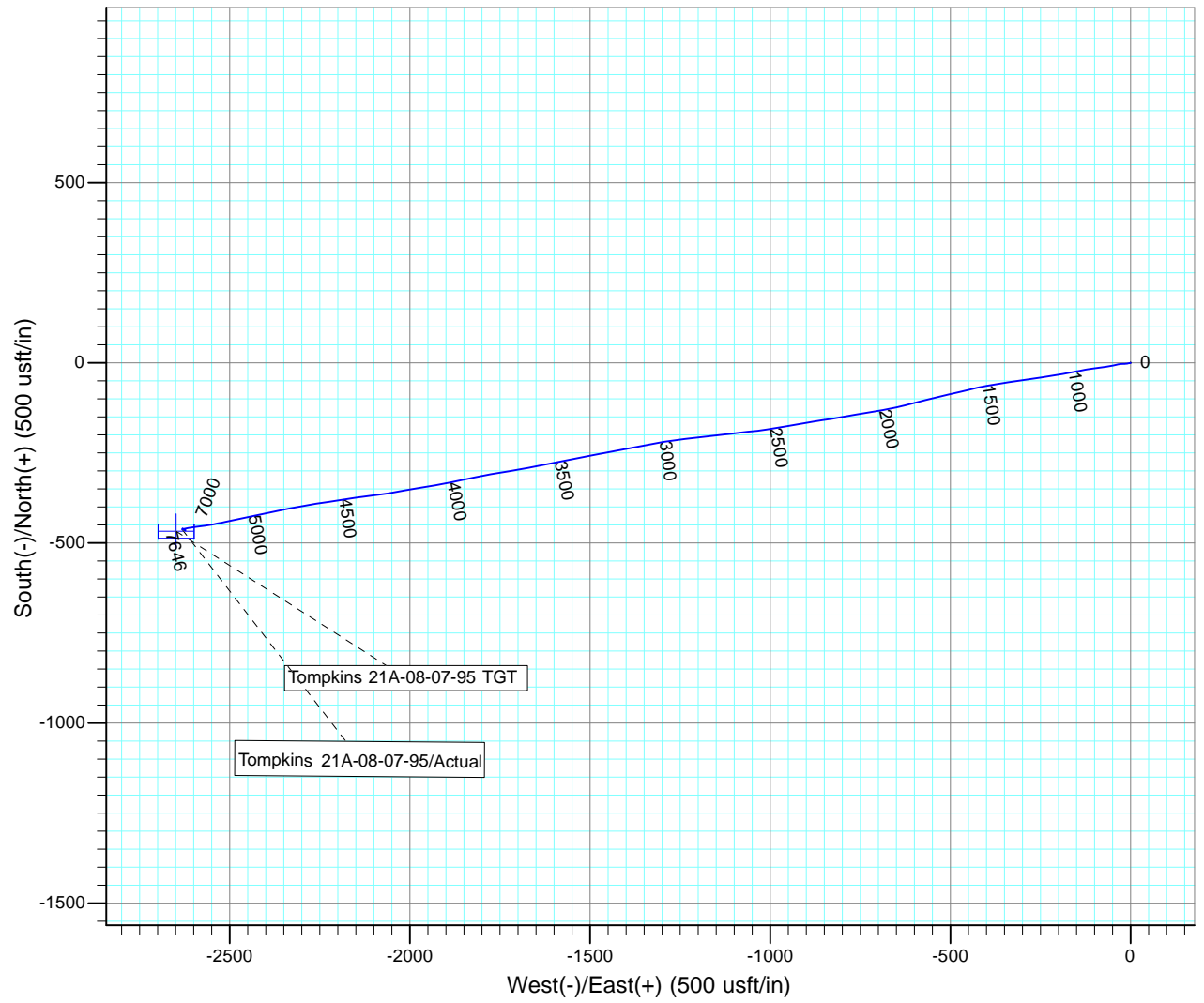
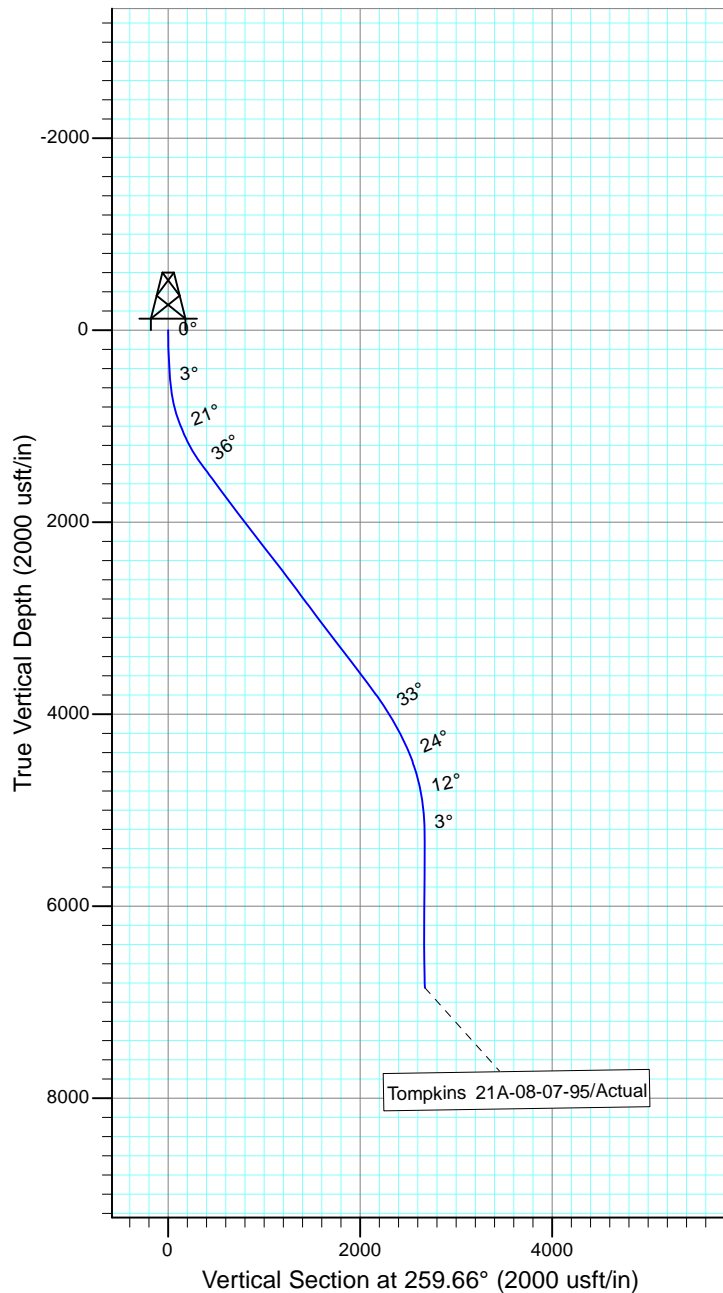
Project: Rockies Region
 Site: Tompkins
 Well: Tompkins 21A-08-07-95
 Wellbore: Wellbore #1
 SURVEY: Actual

FINAL SURVEY REPORT



Azimuths to True North
 Magnetic North: 9.81°

Magnetic Field
 Strength: 51624.6snT
 Dip Angle: 65.57°
 Date: 6/8/2016
 Model: IGRF2015



Design: Actual (Tompkins 21A-08-07-95/Wellbore #1)

Created By: Sarah Webb-Hudson Date: 20:33, July 22 2016
 THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS
 SUPPORTED BY ACTUAL FIELD DATA.

