



Ursa Operating Company, LLC

Rockies Region

Tompkins

Tompkins 31D-08-07-95

Wellbore #1

Design: Actual

End Of Well Report

11 July, 2016



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well Tompkins 31D-08-07-95
Project:	Rockies Region	TVD Reference:	Tompkins 31D-08-07-95 @ 5549.0usft (Capstar 321)
Site:	Tompkins	MD Reference:	Tompkins 31D-08-07-95 @ 5549.0usft (Capstar 321)
Well:	Tompkins 31D-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:		Slot Radius:		13-3/16 "	
				Latitude: 39° 27' 36.106 N	
				Longitude: 108° 0' 51.048 W	
				Grid Convergence: -1.59 °	

Well		Tompkins 31D-08-07-95, SHL LAT: 39.460026900 LONG: -108.014047200				
Well Position	+N/-S	0.0 usft	Northing:	1,602,265.19 usft	Latitude:	39° 27' 36.097 N
	+E/-W	0.0 usft	Easting:	2,290,262.69 usft	Longitude:	108° 0' 50.570 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	224.94

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
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Survey Program		Date 7/11/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
114.0	1,770.0	Surface (Wellbore #1)	MWD	MWD - Standard
1,829.0	7,306.0	Production (Wellbore #1)	MWD	MWD - Standard

Survey									
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
114.0	0.07	193.54	114.0	0.1	-0.1	0.0	0.06	0.06	0.00
143.0	0.50	111.73	143.0	0.0	-0.1	0.1	1.71	1.48	-282.10
174.0	0.31	159.53	174.0	0.0	-0.3	0.3	1.20	-0.61	154.19
205.0	0.16	282.26	205.0	0.1	-0.3	0.2	1.35	-0.48	395.90
234.0	0.33	335.50	234.0	0.1	-0.2	0.2	0.92	0.59	183.59
265.0	0.56	283.08	265.0	0.1	-0.1	0.0	1.43	0.74	-169.10
295.0	0.57	290.41	295.0	0.2	0.0	-0.3	0.24	0.03	24.43
326.0	0.35	325.64	326.0	0.3	0.1	-0.5	1.12	-0.71	113.65
357.0	0.16	274.20	357.0	0.3	0.2	-0.6	0.90	-0.61	-165.94
387.0	0.18	225.56	387.0	0.4	0.1	-0.7	0.47	0.07	-162.13
418.0	0.35	191.39	418.0	0.5	0.0	-0.7	0.73	0.55	-110.23
449.0	0.44	229.01	449.0	0.7	-0.2	-0.8	0.87	0.29	121.35
479.0	1.14	197.10	479.0	1.1	-0.5	-1.0	2.67	2.33	-106.37
510.0	1.85	203.43	510.0	1.8	-1.3	-1.3	2.35	2.29	20.42
540.0	2.50	209.98	540.0	2.9	-2.3	-1.8	2.32	2.17	21.83
571.0	3.45	209.35	570.9	4.5	-3.7	-2.6	3.07	3.06	-2.03
601.0	4.44	212.61	600.8	6.5	-5.4	-3.7	3.38	3.30	10.87
632.0	5.58	216.09	631.7	9.1	-7.7	-5.2	3.80	3.68	11.23
661.0	6.50	219.60	660.6	12.1	-10.1	-7.1	3.42	3.17	12.10
691.0	7.47	219.60	690.3	15.8	-12.9	-9.4	3.23	3.23	0.00

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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)
722.0	8.53	221.80	721.0	20.1	-16.2	-12.2	3.56	3.42	7.10
753.0	9.45	220.70	751.7	24.9	-19.8	-15.4	3.02	2.97	-3.55
783.0	10.59	222.02	781.2	30.1	-23.7	-18.9	3.88	3.80	4.40
814.0	11.60	225.80	811.6	36.1	-28.0	-23.0	4.01	3.26	12.19
844.0	12.26	226.59	841.0	42.3	-32.3	-27.5	2.27	2.20	2.63
887.0	13.84	228.53	882.9	52.0	-38.8	-34.7	3.81	3.67	4.51
929.0	14.93	230.04	923.5	62.4	-45.6	-42.6	2.74	2.60	3.60
972.0	16.48	227.82	964.9	74.0	-53.3	-51.3	3.87	3.60	-5.16
1,015.0	17.75	224.35	1,006.0	86.6	-62.1	-60.4	3.79	2.95	-8.07
1,058.0	18.91	223.61	1,046.9	100.2	-71.8	-69.8	2.75	2.70	-1.72
1,100.0	19.90	224.41	1,086.5	114.1	-81.8	-79.5	2.44	2.36	1.90
1,143.0	21.37	225.17	1,126.7	129.3	-92.6	-90.2	3.47	3.42	1.77
1,186.0	22.63	228.00	1,166.6	145.4	-103.7	-101.9	3.83	2.93	6.58
1,228.0	23.89	228.03	1,205.2	161.9	-114.8	-114.2	3.00	3.00	0.07
1,271.0	25.14	227.03	1,244.3	179.7	-126.8	-127.4	3.06	2.91	-2.33
1,313.0	26.24	224.25	1,282.1	197.9	-139.5	-140.4	3.88	2.62	-6.62
1,356.0	27.79	226.19	1,320.4	217.5	-153.3	-154.3	4.15	3.60	4.51
1,399.0	29.36	226.90	1,358.2	238.0	-167.4	-169.2	3.74	3.65	1.65
1,442.0	30.37	226.15	1,395.5	259.4	-182.2	-184.7	2.50	2.35	-1.74
1,484.0	30.23	225.85	1,431.8	280.6	-196.9	-200.0	0.49	-0.33	-0.71
1,527.0	30.41	226.77	1,468.9	302.3	-211.9	-215.7	1.16	0.42	2.14
1,569.0	29.88	226.42	1,505.2	323.4	-226.4	-231.0	1.33	-1.26	-0.83
1,612.0	30.59	224.09	1,542.3	345.1	-241.6	-246.4	3.19	1.65	-5.42
1,655.0	31.77	224.44	1,579.1	367.3	-257.6	-261.9	2.78	2.74	0.81
1,698.0	31.46	221.89	1,615.8	389.8	-274.0	-277.3	3.19	-0.72	-5.93
1,741.0	31.89	221.57	1,652.3	412.4	-290.8	-292.4	1.07	1.00	-0.74
1,770.0	31.95	223.38	1,677.0	427.7	-302.1	-302.7	3.31	0.21	6.24

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1,829.0	31.86	221.89	1,727.0	458.9	-325.1	-323.8	1.34	-0.15	-2.53	
1,914.0	31.11	220.40	1,799.5	503.2	-358.5	-353.1	1.27	-0.88	-1.75	
2,000.0	30.98	218.37	1,873.2	547.3	-392.8	-381.2	1.23	-0.15	-2.36	
2,085.0	30.51	216.31	1,946.3	590.4	-427.3	-407.5	1.36	-0.55	-2.42	
2,170.0	29.58	218.24	2,019.9	632.5	-461.2	-433.3	1.58	-1.09	2.27	
2,256.0	29.05	220.09	2,094.8	674.4	-493.8	-459.9	1.22	-0.62	2.15	
2,341.0	29.36	222.02	2,169.0	715.8	-525.1	-487.1	1.17	0.36	2.27	
2,426.0	29.47	225.27	2,243.1	757.5	-555.3	-515.9	1.88	0.13	3.82	
2,512.0	29.58	228.17	2,317.9	799.9	-584.3	-546.8	1.67	0.13	3.37	
2,597.0	31.20	226.59	2,391.2	842.8	-613.5	-578.4	2.13	1.91	-1.86	
2,683.0	32.74	226.72	2,464.2	888.3	-644.7	-611.5	1.79	1.79	0.15	
2,768.0	33.35	227.38	2,535.4	934.6	-676.3	-645.5	0.83	0.72	0.78	
2,854.0	33.86	227.44	2,607.1	982.2	-708.5	-680.5	0.59	0.59	0.07	
2,939.0	32.83	227.16	2,678.1	1,028.9	-740.2	-714.8	1.23	-1.21	-0.33	
3,024.0	31.89	226.73	2,749.9	1,074.4	-771.3	-748.1	1.14	-1.11	-0.51	
3,110.0	32.56	226.72	2,822.6	1,120.2	-802.7	-781.5	0.78	0.78	-0.01	
3,195.0	31.15	226.33	2,894.8	1,165.0	-833.6	-814.0	1.68	-1.66	-0.46	
3,280.0	31.26	226.18	2,967.5	1,209.1	-864.0	-845.8	0.16	0.13	-0.18	
3,366.0	31.64	225.14	3,040.9	1,253.9	-895.4	-877.9	0.77	0.44	-1.21	
3,451.0	31.55	226.72	3,113.3	1,298.4	-926.3	-909.9	0.98	-0.11	1.86	
3,537.0	31.11	226.46	3,186.8	1,343.1	-957.1	-942.4	0.54	-0.51	-0.30	
3,622.0	30.94	225.98	3,259.6	1,386.9	-987.4	-974.0	0.35	-0.20	-0.56	
3,707.0	31.25	225.43	3,332.4	1,430.8	-1,018.0	-1,005.5	0.49	0.36	-0.65	
3,792.0	30.32	225.58	3,405.4	1,474.3	-1,048.5	-1,036.5	1.10	-1.09	0.18	
3,878.0	30.23	225.93	3,479.7	1,517.7	-1,078.8	-1,067.5	0.23	-0.10	0.41	
3,963.0	29.32	224.56	3,553.5	1,559.9	-1,108.5	-1,097.5	1.34	-1.07	-1.61	
4,048.0	27.47	224.22	3,628.2	1,600.3	-1,137.4	-1,125.8	2.18	-2.18	-0.40	

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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)	
4,134.0	26.67	225.54	3,704.8	1,639.4	-1,165.1	-1,153.4	1.16	-0.93	1.53	
4,219.0	25.22	223.12	3,781.2	1,676.6	-1,191.7	-1,179.4	2.11	-1.71	-2.85	
4,305.0	24.00	221.62	3,859.4	1,712.4	-1,218.1	-1,203.6	1.59	-1.42	-1.74	
4,390.0	23.29	224.57	3,937.3	1,746.5	-1,243.0	-1,226.8	1.62	-0.84	3.47	
4,476.0	21.49	223.87	4,016.8	1,779.2	-1,266.5	-1,249.7	2.12	-2.09	-0.81	
4,561.0	19.47	228.70	4,096.4	1,808.9	-1,287.1	-1,271.1	3.10	-2.38	5.68	
4,646.0	17.05	229.84	4,177.1	1,835.5	-1,304.5	-1,291.3	2.88	-2.85	1.34	
4,731.0	13.84	229.36	4,259.1	1,858.0	-1,319.1	-1,308.5	3.78	-3.78	-0.56	
4,817.0	10.81	230.20	4,343.1	1,876.3	-1,331.0	-1,322.5	3.53	-3.52	0.98	
4,902.0	7.12	230.28	4,427.0	1,889.5	-1,339.5	-1,332.7	4.34	-4.34	0.09	
4,988.0	4.53	237.01	4,512.6	1,898.1	-1,344.7	-1,339.7	3.11	-3.01	7.83	
5,073.0	3.16	235.60	4,597.4	1,903.7	-1,347.9	-1,344.4	1.62	-1.61	-1.66	
5,159.0	1.32	240.39	4,683.3	1,907.0	-1,349.7	-1,347.2	2.15	-2.14	5.57	
5,244.0	1.17	333.46	4,768.3	1,907.7	-1,349.4	-1,348.5	2.13	-0.18	109.49	
5,329.0	1.54	351.09	4,853.3	1,906.7	-1,347.5	-1,349.0	0.65	0.44	20.74	
5,415.0	1.36	353.90	4,939.2	1,905.4	-1,345.3	-1,349.3	0.22	-0.21	3.27	
5,500.0	1.23	352.72	5,024.2	1,904.2	-1,343.4	-1,349.5	0.16	-0.15	-1.39	
5,586.0	1.30	357.28	5,110.2	1,903.0	-1,341.6	-1,349.7	0.14	0.08	5.30	
5,671.0	0.92	342.65	5,195.2	1,902.0	-1,339.9	-1,349.9	0.55	-0.45	-17.21	
5,756.0	0.88	345.64	5,280.2	1,901.4	-1,338.7	-1,350.3	0.07	-0.05	3.52	
5,842.0	0.35	1.33	5,366.2	1,900.8	-1,337.8	-1,350.5	0.64	-0.62	18.24	
5,927.0	0.53	341.25	5,451.2	1,900.5	-1,337.1	-1,350.6	0.28	0.21	-23.62	
6,012.0	0.40	335.93	5,536.2	1,900.2	-1,336.5	-1,350.8	0.16	-0.15	-6.26	
6,098.0	0.22	4.80	5,622.2	1,900.0	-1,336.0	-1,350.9	0.27	-0.21	33.57	
6,183.0	1.10	135.98	5,707.2	1,899.9	-1,336.5	-1,350.4	1.48	1.04	154.33	
6,268.0	1.05	144.40	5,792.1	1,900.0	-1,337.7	-1,349.3	0.19	-0.06	9.91	
6,354.0	1.01	155.66	5,878.1	1,900.4	-1,339.0	-1,348.6	0.24	-0.05	13.09	

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6,439.0	0.83	168.58	5,963.1	1,901.0	-1,340.3	-1,348.1	0.32	-0.21	15.20	
6,525.0	0.79	207.29	6,049.1	1,901.9	-1,341.4	-1,348.3	0.63	-0.05	45.01	
6,610.0	1.19	236.17	6,134.1	1,903.3	-1,342.4	-1,349.3	0.74	0.47	33.98	
6,695.0	1.54	249.27	6,219.1	1,905.3	-1,343.3	-1,351.1	0.55	0.41	15.41	
6,781.0	1.96	252.87	6,305.0	1,907.6	-1,344.2	-1,353.6	0.50	0.49	4.19	
6,866.0	1.63	257.62	6,390.0	1,909.9	-1,344.9	-1,356.2	0.43	-0.39	5.59	
6,952.0	1.32	259.11	6,476.0	1,911.8	-1,345.3	-1,358.3	0.36	-0.36	1.73	
7,037.0	1.38	263.98	6,560.9	1,913.4	-1,345.6	-1,360.3	0.15	0.07	5.73	
7,122.0	1.54	257.35	6,645.9	1,915.1	-1,346.0	-1,362.4	0.27	0.19	-7.80	
7,208.0	1.49	250.23	6,731.9	1,917.1	-1,346.6	-1,364.6	0.23	-0.06	-8.28	
7,251.0	1.36	246.19	6,774.9	1,918.1	-1,347.0	-1,365.6	0.38	-0.30	-9.40	
Last PZD Survey										
7,306.0	1.36	246.19	6,829.9	1,919.3	-1,347.5	-1,366.8	0.00	0.00	0.00	
Straight Line Projection to TD										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
7,251.0	6,774.9	-1,347.0	-1,365.6	Last PZD Survey	
7,306.0	6,829.9	-1,347.5	-1,366.8	Straight Line Projection to TD	

Checked By: _____ Approved By: _____ Date: _____



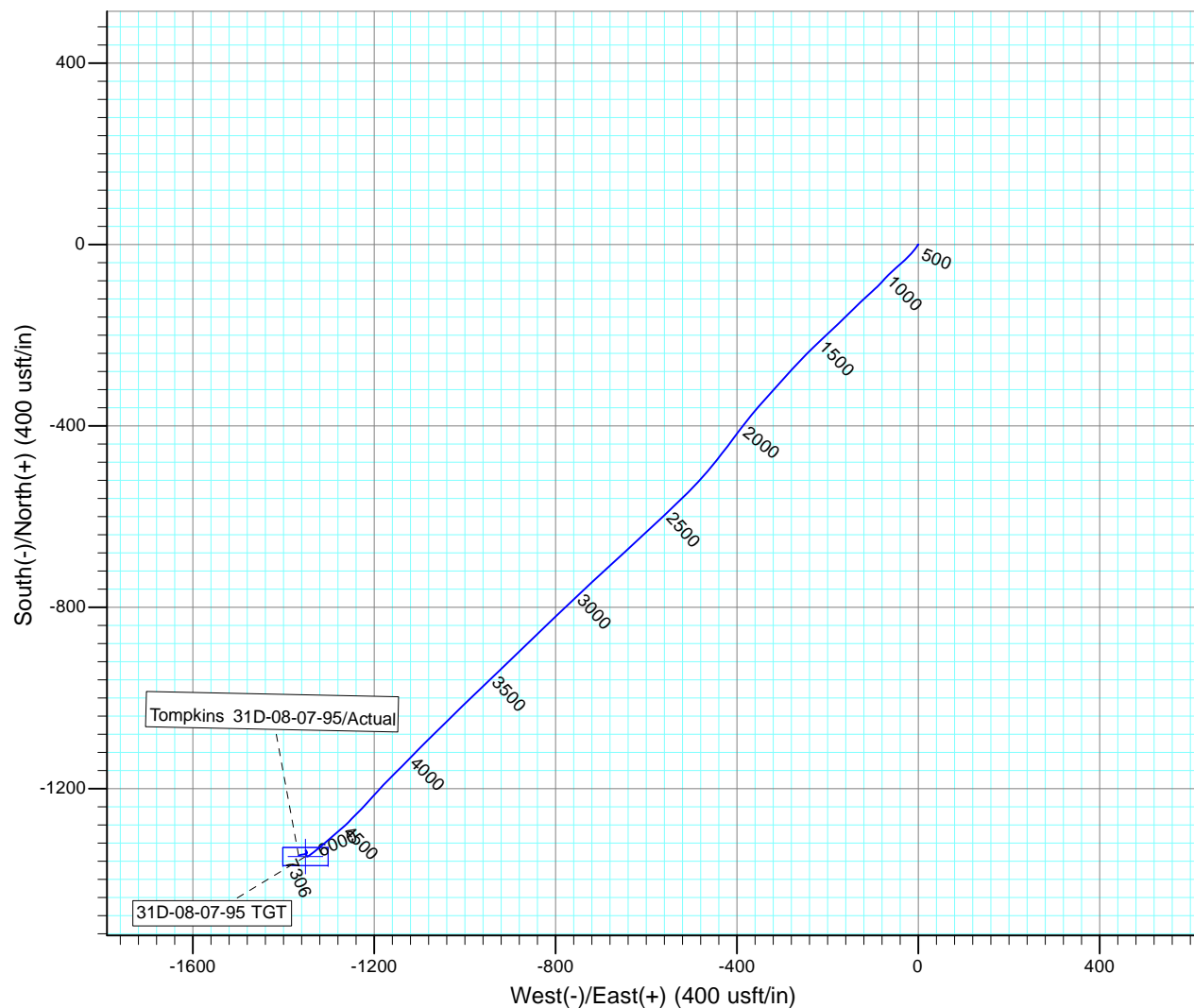
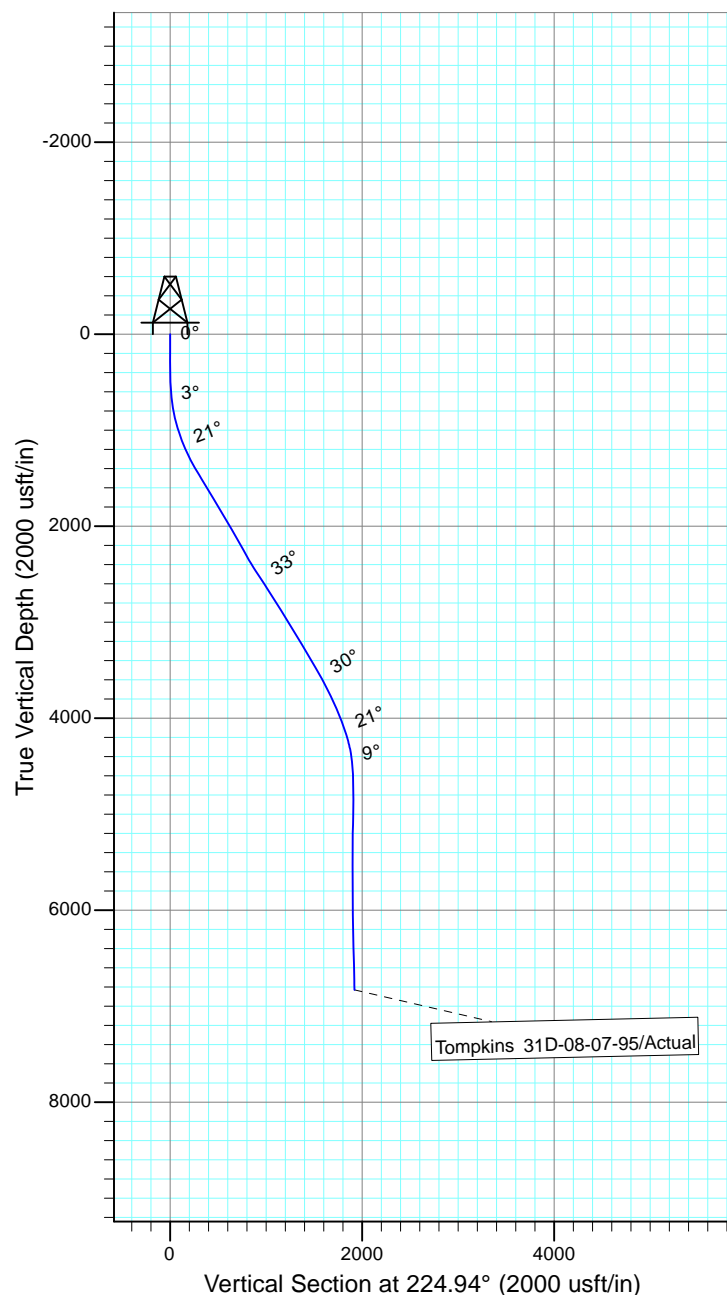
Project: Rockies Region
 Site: Tompkins
 Well: Tompkins 31D-08-07-95
 Wellbore: Wellbore #1
 SURVEY: Actual

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 31D-08-07-95/Wellbore #1)

Created By: Sarah Webb-Hudson Date: 7:06, July 11 2016
 THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS
 SUPPORTED BY ACTUAL FIELD DATA.