



Ursa Operating Company, LLC

Rockies Region

Tompkins

Tompkins 31C-08-07-95

Wellbore #1

Design: Wellbore #1

End Of Well Report

12 July, 2016



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well Tompkins 31C-08-07-95
Project:	Rockies Region	TVD Reference:	Tompkins 31C-08-07-95 @ 5549.0usft (Capstar 321)
Site:	Tompkins	MD Reference:	Tompkins 31C-08-07-95 @ 5549.0usft (Capstar 321)
Well:	Tompkins 31C-08-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	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		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 31C-08-07-95, SHL LAT: 39.460027700 LONG: -108.014091400				
Well Position	+N/-S	0.0 usft	Northing:	1,602,265.81 usft	Latitude:	39° 27' 36.099 N
	+E/-W	0.0 usft	Easting:	2,290,250.22 usft	Longitude:	108° 0' 50.729 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		Wellbore #1			
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	232.07

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Survey Program		Date 7/12/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
114.0	1,755.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard
1,828.0	7,215.0	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	0.35	108.64	114.0	-0.2	-0.1	0.3	0.31	0.31	0.00	
143.0	0.53	132.89	143.0	-0.3	-0.2	0.5	0.88	0.62	83.62	
174.0	0.83	104.20	174.0	-0.4	-0.4	0.8	1.44	0.97	-92.55	
205.0	0.66	104.95	205.0	-0.7	-0.5	1.2	0.55	-0.55	2.42	
234.0	0.56	122.28	234.0	-0.8	-0.6	1.5	0.72	-0.34	59.76	
265.0	0.66	186.16	265.0	-0.7	-0.9	1.6	2.10	0.32	206.06	
295.0	0.35	174.07	295.0	-0.6	-1.1	1.6	1.09	-1.03	-40.30	
326.0	0.48	189.32	326.0	-0.4	-1.3	1.6	0.55	0.42	49.19	
357.0	0.97	217.31	357.0	-0.1	-1.7	1.4	1.91	1.58	90.29	
387.0	1.05	239.59	387.0	0.4	-2.0	1.0	1.33	0.27	74.27	
418.0	1.14	243.99	418.0	1.0	-2.3	0.5	0.40	0.29	14.19	
449.0	1.19	249.17	449.0	1.6	-2.6	-0.1	0.38	0.16	16.71	
479.0	1.19	253.39	479.0	2.2	-2.8	-0.7	0.29	0.00	14.07	
510.0	1.24	252.10	510.0	2.8	-2.9	-1.3	0.18	0.16	-4.16	
540.0	1.71	247.11	539.9	3.6	-3.2	-2.0	1.62	1.57	-16.63	
571.0	2.33	241.00	570.9	4.6	-3.7	-3.0	2.11	2.00	-19.71	
601.0	2.94	234.41	600.9	6.0	-4.5	-4.2	2.27	2.03	-21.97	
632.0	3.56	230.67	631.8	7.8	-5.5	-5.5	2.11	2.00	-12.06	
661.0	4.57	233.22	660.8	9.8	-6.8	-7.2	3.54	3.48	8.79	
692.0	5.36	231.86	691.7	12.5	-8.4	-9.3	2.58	2.55	-4.39	

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Design:	Wellbore #1	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)	
723.0	6.06	231.29	722.5	15.6	-10.3	-11.7	2.27	2.26	-1.84	
752.0	6.94	233.66	751.3	18.9	-12.3	-14.3	3.17	3.03	8.17	
781.0	8.02	234.88	780.1	22.6	-14.5	-17.4	3.76	3.72	4.21	
810.0	8.96	230.45	808.7	26.9	-17.1	-20.8	3.95	3.24	-15.28	
839.0	9.95	231.32	837.4	31.7	-20.1	-24.5	3.45	3.41	3.00	
930.0	14.37	232.52	926.3	50.8	-31.9	-39.6	4.86	4.86	1.32	
972.0	15.86	233.71	966.8	61.8	-38.5	-48.3	3.62	3.55	2.83	
1,015.0	17.31	233.84	1,008.0	74.1	-45.8	-58.2	3.37	3.37	0.30	
1,058.0	18.68	231.18	1,048.9	87.3	-53.8	-68.8	3.71	3.19	-6.19	
1,101.0	20.74	232.83	1,089.4	101.8	-62.8	-80.2	4.96	4.79	3.84	
1,143.0	22.32	233.05	1,128.5	117.3	-72.1	-92.5	3.77	3.76	0.52	
1,186.0	23.77	232.21	1,168.1	134.1	-82.3	-105.9	3.46	3.37	-1.95	
1,229.0	25.47	233.51	1,207.1	152.0	-93.1	-120.2	4.15	3.95	3.02	
1,271.0	27.05	234.10	1,244.8	170.6	-104.0	-135.2	3.81	3.76	1.40	
1,314.0	27.42	233.57	1,283.0	190.2	-115.7	-151.0	1.03	0.86	-1.23	
1,357.0	27.18	231.77	1,321.3	210.0	-127.6	-166.7	2.00	-0.56	-4.19	
1,399.0	26.97	231.16	1,358.7	229.1	-139.5	-181.7	0.83	-0.50	-1.45	
1,442.0	26.85	231.02	1,397.0	248.5	-151.8	-196.8	0.32	-0.28	-0.33	
1,485.0	27.03	231.64	1,435.3	268.0	-163.9	-212.0	0.78	0.42	1.44	
1,528.0	27.03	229.75	1,473.6	287.5	-176.3	-227.2	2.00	0.00	-4.40	
1,570.0	27.47	229.66	1,511.0	306.8	-188.7	-241.8	1.05	1.05	-0.21	
1,613.0	27.06	230.03	1,549.2	326.4	-201.4	-256.9	1.03	-0.95	0.86	
1,656.0	27.03	231.51	1,587.5	346.0	-213.8	-272.0	1.57	-0.07	3.44	
1,698.0	27.51	233.71	1,624.8	365.2	-225.5	-287.3	2.66	1.14	5.24	
1,741.0	27.38	233.40	1,663.0	385.0	-237.3	-303.3	0.45	-0.30	-0.72	
1,755.0	27.72	233.28	1,675.4	391.5	-241.1	-308.4	2.46	2.43	-0.86	
1,828.0	27.91	233.89	1,740.0	425.6	-261.3	-335.9	0.47	0.26	0.84	

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1,914.0	27.38	233.18	1,816.1	465.5	-285.1	-368.0	0.73	-0.62	-0.83	
1,999.0	26.63	232.48	1,891.9	504.0	-308.4	-398.7	0.96	-0.88	-0.82	
2,084.0	27.03	231.82	1,967.7	542.4	-331.9	-429.0	0.59	0.47	-0.78	
2,170.0	27.07	233.10	2,044.3	581.5	-355.7	-460.0	0.68	0.05	1.49	
2,256.0	27.55	234.90	2,120.7	620.9	-378.9	-491.9	1.11	0.56	2.09	
2,341.0	26.76	236.08	2,196.4	659.7	-400.9	-523.9	1.12	-0.93	1.39	
2,426.0	26.54	234.81	2,272.3	697.7	-422.5	-555.3	0.72	-0.26	-1.49	
2,511.0	26.59	234.06	2,348.4	735.7	-444.6	-586.2	0.40	0.06	-0.88	
2,597.0	26.54	231.38	2,425.3	774.2	-467.9	-616.8	1.39	-0.06	-3.12	
2,682.0	26.81	233.89	2,501.2	812.3	-491.1	-647.1	1.36	0.32	2.95	
2,768.0	27.11	233.23	2,577.9	851.3	-514.2	-678.5	0.49	0.35	-0.77	
2,853.0	27.60	231.69	2,653.4	890.3	-538.0	-709.5	1.01	0.58	-1.81	
2,938.0	26.74	232.13	2,729.0	929.1	-562.0	-740.0	1.04	-1.01	0.52	
3,024.0	27.69	230.99	2,805.5	968.5	-586.4	-770.8	1.26	1.10	-1.33	
3,109.0	26.57	229.74	2,881.1	1,007.2	-611.2	-800.7	1.48	-1.32	-1.47	
3,195.0	26.59	232.22	2,958.1	1,045.7	-635.4	-830.6	1.29	0.02	2.88	
3,280.0	26.50	235.16	3,034.1	1,083.6	-657.9	-861.2	1.55	-0.11	3.46	
3,365.0	27.07	234.02	3,110.0	1,121.9	-680.1	-892.4	0.90	0.67	-1.34	
3,451.0	28.04	233.71	3,186.2	1,161.7	-703.5	-924.5	1.14	1.13	-0.36	
3,536.0	27.26	234.87	3,261.5	1,201.1	-726.6	-956.5	1.11	-0.92	1.36	
3,621.0	25.75	231.16	3,337.6	1,239.0	-749.3	-986.8	2.64	-1.78	-4.36	
3,707.0	25.97	233.05	3,415.0	1,276.5	-772.4	-1,016.4	0.99	0.26	2.20	
3,792.0	26.50	232.66	3,491.2	1,314.1	-795.1	-1,046.4	0.66	0.62	-0.46	
3,878.0	27.07	232.61	3,568.0	1,352.8	-818.6	-1,077.2	0.66	0.66	-0.06	
3,963.0	26.94	233.93	3,643.7	1,391.4	-841.7	-1,108.1	0.72	-0.15	1.55	
4,049.0	25.62	233.05	3,720.8	1,429.5	-864.3	-1,138.7	1.60	-1.53	-1.02	
4,134.0	24.39	231.82	3,797.9	1,465.4	-886.2	-1,167.2	1.57	-1.45	-1.45	

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4,220.0	23.38	232.09	3,876.5	1,500.2	-907.7	-1,194.6	1.18	-1.17	0.31	
4,305.0	22.50	229.49	3,954.8	1,533.3	-928.6	-1,220.3	1.58	-1.04	-3.06	
4,390.0	21.45	230.15	4,033.6	1,565.1	-949.1	-1,244.6	1.27	-1.24	0.78	
4,476.0	18.53	228.86	4,114.4	1,594.5	-968.2	-1,267.0	3.43	-3.40	-1.50	
4,561.0	15.49	231.87	4,195.7	1,619.3	-984.1	-1,286.1	3.72	-3.58	3.54	
4,646.0	12.30	230.37	4,278.2	1,639.7	-996.9	-1,302.0	3.78	-3.75	-1.76	
4,731.0	9.71	233.67	4,361.6	1,655.9	-1,006.9	-1,314.7	3.13	-3.05	3.88	
4,817.0	6.48	235.68	4,446.7	1,668.0	-1,013.9	-1,324.6	3.77	-3.76	2.34	
4,902.0	3.34	238.94	4,531.4	1,675.3	-1,017.9	-1,330.7	3.71	-3.69	3.84	
4,988.0	0.48	265.62	4,617.4	1,678.1	-1,019.2	-1,333.2	3.39	-3.33	31.02	
5,073.0	0.31	340.06	4,702.4	1,678.3	-1,019.1	-1,333.6	0.58	-0.20	87.58	
5,158.0	0.35	314.22	4,787.4	1,678.3	-1,018.7	-1,333.9	0.18	0.05	-30.40	
5,244.0	0.13	97.79	4,873.4	1,678.2	-1,018.5	-1,334.0	0.54	-0.26	166.94	
5,329.0	0.40	127.54	4,958.4	1,678.1	-1,018.7	-1,333.6	0.35	0.32	35.00	
5,415.0	0.53	176.89	5,044.4	1,678.2	-1,019.3	-1,333.4	0.47	0.15	57.38	
5,500.0	0.88	181.50	5,129.4	1,678.9	-1,020.3	-1,333.4	0.42	0.41	5.42	
5,586.0	1.01	197.41	5,215.3	1,679.9	-1,021.7	-1,333.6	0.34	0.15	18.50	
5,671.0	0.48	6.16	5,300.3	1,680.3	-1,022.1	-1,333.8	1.75	-0.62	198.53	
5,756.0	0.97	1.28	5,385.3	1,679.6	-1,021.0	-1,333.7	0.58	0.58	-5.74	
5,842.0	0.44	8.27	5,471.3	1,678.9	-1,019.9	-1,333.7	0.62	-0.62	8.13	
5,927.0	0.26	351.70	5,556.3	1,678.6	-1,019.4	-1,333.7	0.24	-0.21	-19.49	
6,013.0	0.18	353.02	5,642.3	1,678.4	-1,019.1	-1,333.7	0.09	-0.09	1.53	
6,098.0	0.04	254.01	5,727.3	1,678.4	-1,019.0	-1,333.7	0.22	-0.16	-116.48	
6,184.0	0.57	190.82	5,813.3	1,678.7	-1,019.4	-1,333.9	0.64	0.62	-73.48	
6,269.0	0.83	206.29	5,898.3	1,679.6	-1,020.4	-1,334.2	0.38	0.31	18.20	
6,354.0	1.10	215.47	5,983.3	1,680.9	-1,021.6	-1,335.0	0.37	0.32	10.80	
6,440.0	1.14	226.24	6,069.3	1,682.6	-1,022.8	-1,336.0	0.25	0.05	12.52	

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6,525.0	1.39	235.55	6,154.3	1,684.4	-1,024.0	-1,337.5	0.38	0.29	10.95	
6,610.0	1.45	245.84	6,239.2	1,686.5	-1,025.0	-1,339.3	0.31	0.07	12.11	
6,696.0	1.19	245.84	6,325.2	1,688.4	-1,025.8	-1,341.1	0.30	-0.30	0.00	
6,781.0	1.45	240.30	6,410.2	1,690.3	-1,026.7	-1,342.9	0.34	0.31	-6.52	
6,867.0	1.76	234.55	6,496.2	1,692.7	-1,028.0	-1,344.9	0.41	0.36	-6.69	
6,952.0	1.89	227.52	6,581.1	1,695.4	-1,029.7	-1,347.0	0.30	0.15	-8.27	
7,038.0	2.07	225.41	6,667.1	1,698.4	-1,031.8	-1,349.2	0.23	0.21	-2.45	
7,123.0	2.20	229.05	6,752.0	1,701.6	-1,033.9	-1,351.5	0.22	0.15	4.28	
7,160.0	2.11	221.93	6,789.0	1,702.9	-1,034.9	-1,352.5	0.76	-0.24	-19.24	
Last PZD Survey										
7,215.0	2.11	221.93	6,843.9	1,704.9	-1,036.4	-1,353.8	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)		
7,160.0	6,789.0	-1,034.9	-1,352.5	Last PZD Survey	
7,215.0	6,843.9	-1,036.4	-1,353.8	Straight Line Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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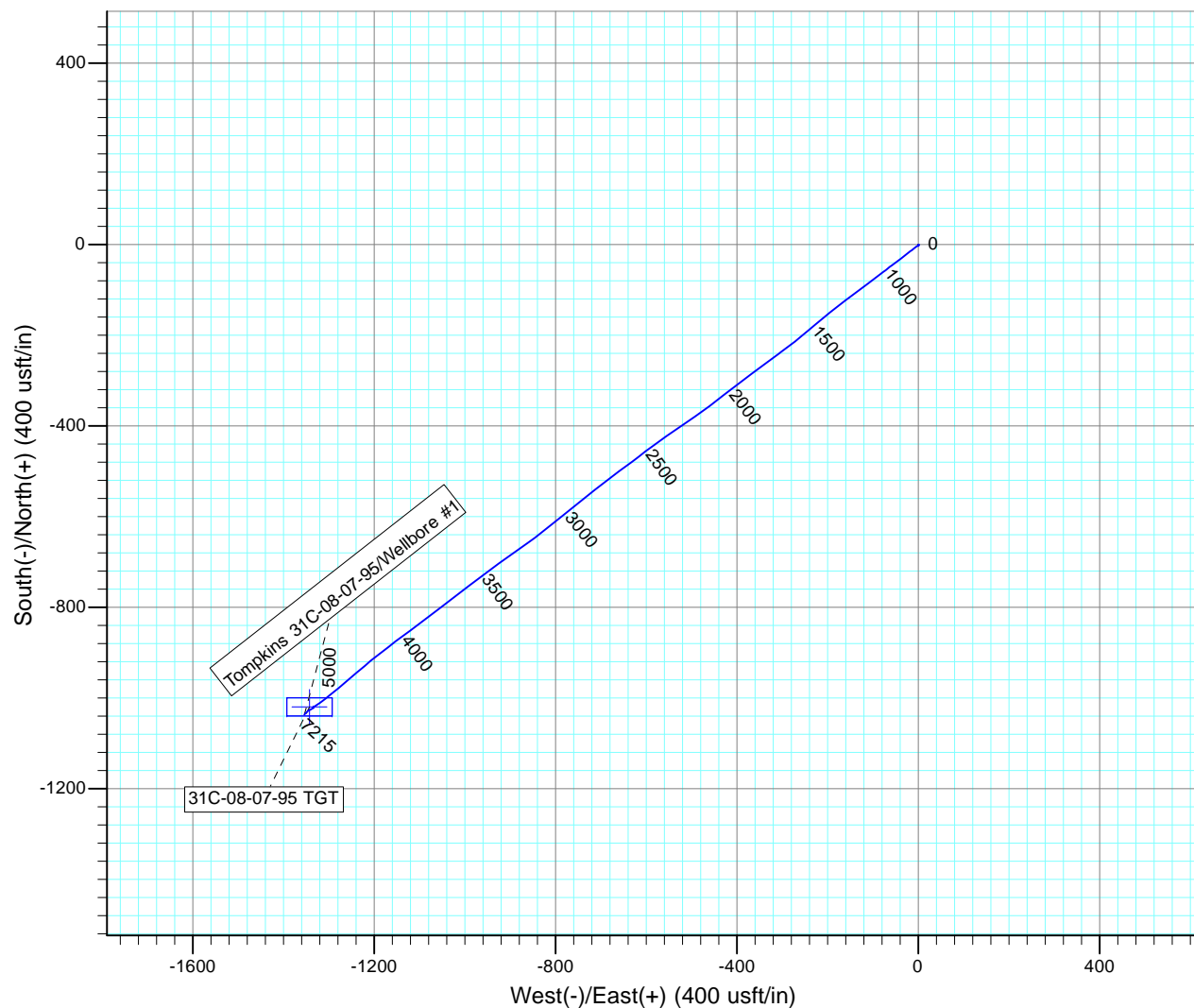
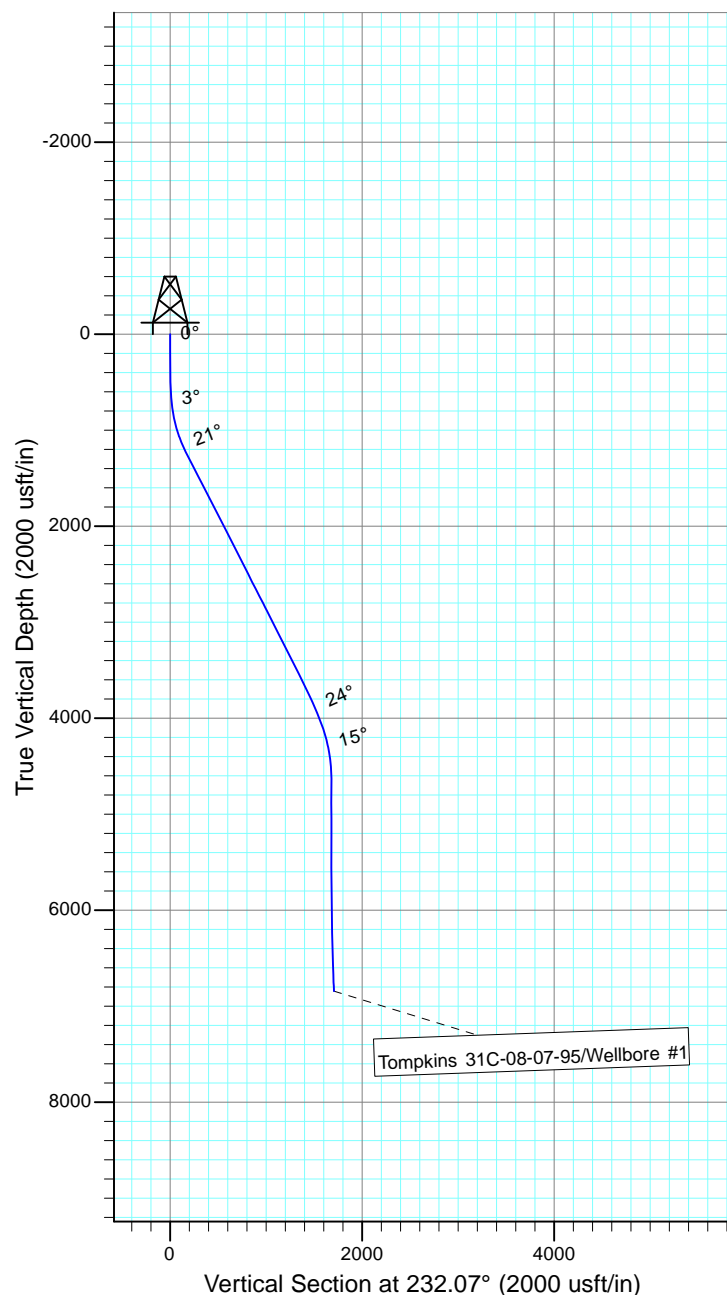
Project: Rockies Region
 Site: Tompkins
 Well: Tompkins 31C-08-07-95
 Wellbore: Wellbore #1
 SURVEY: Wellbore #1

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: Wellbore #1 (Tompkins 31C-08-07-95/Wellbore #1)

Created By: Sarah Webb-Hudson Date: 8:59, July 12 2016
 THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS
 SUPPORTED BY ACTUAL FIELD DATA.