



# **Ursa Operating Company, LLC**

**Rockies Region**

**Tompkins**

**Tompkins 41A-08-07-95**

**Wellbore #1**

**Design: Actual**

## **End Of Well Report**

**11 July, 2016**



<b>Company:</b> Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b> Well Tompkins 41A-08-07-95
<b>Project:</b> Rockies Region	<b>TVD Reference:</b> Tompkins 41A-08-07-95 @ 5549.0usft (Capstar 321)
<b>Site:</b> Tompkins	<b>MD Reference:</b> Tompkins 41A-08-07-95 @ 5549.0usft (Capstar 321)
<b>Well:</b> Tompkins 41A-08-07-95	<b>North Reference:</b> True
<b>Wellbore:</b> Wellbore #1	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> Actual	<b>Database:</b> MasterDB

<b>Project</b>	Rockies Region		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

<b>Site</b>	Tompkins		
<b>Site Position:</b>	<b>Northing:</b>	1,602,267.16 usft	<b>Latitude:</b> 39° 27' 36.106 N
<b>From:</b> Lat/Long	<b>Easting:</b>	2,290,225.27 usft	<b>Longitude:</b> 108° 0' 51.048 W
<b>Position Uncertainty:</b> 0.0 usft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b> -1.59 °

<b>Well</b>	Tompkins 41A-08-07-95, SHL LAT: 39.460026000 LONG: -108.014002900		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b> 1,602,264.51 usft
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b> 2,290,275.19 usft
<b>Position Uncertainty</b>		0.0 usft	<b>Wellhead Elevation:</b> 5,549.0 usft
			<b>Latitude:</b> 39° 27' 36.093 N
			<b>Longitude:</b> 108° 0' 50.410 W
			<b>Ground Level:</b> 5,532.0 usft

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

<b>Design</b>	Actual			
<b>Audit Notes:</b>				
<b>Version:</b> 1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b> 0.0	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	188.76

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<b>Well:</b>	Tompkins 41A-08-07-95	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	MasterDB

Survey Program	Date									
	7/11/2016									
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description						
144.0	1,697.0	Surface (Wellbore #1)	MWD	MWD - Standard						
1,786.0	6,900.0	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	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
144.0	0.70	189.33	144.0	144.0	0.9	-0.9	-0.1	0.49	0.49	0.00	0.00
175.0	0.70	205.89	175.0	175.0	1.2	-1.2	-0.3	0.65	0.00	53.42	53.42
205.0	0.62	173.37	205.0	205.0	1.6	-1.6	-0.3	1.26	-0.27	-108.40	-108.40
235.0	0.70	176.58	235.0	235.0	1.9	-1.9	-0.3	0.29	0.27	10.70	10.70
265.0	0.75	180.05	265.0	265.0	2.3	-2.3	-0.3	0.22	0.17	11.57	11.57
296.0	0.83	157.38	296.0	296.0	2.7	-2.7	-0.2	1.03	0.26	-73.13	-73.13
326.0	0.48	160.02	326.0	326.0	3.0	-3.0	-0.1	1.17	-1.17	8.80	8.80
357.0	0.31	57.40	357.0	357.0	3.0	-3.1	0.1	2.02	-0.55	-331.03	-331.03
388.0	0.35	37.41	388.0	388.0	2.9	-3.0	0.2	0.39	0.13	-64.48	-64.48
418.0	0.48	39.21	418.0	418.0	2.7	-2.8	0.3	0.44	0.43	6.00	6.00
449.0	0.53	67.60	449.0	449.0	2.5	-2.6	0.5	0.81	0.16	91.58	91.58
479.0	0.57	70.63	479.0	479.0	2.4	-2.5	0.8	0.16	0.13	10.10	10.10
510.0	0.71	47.13	510.0	510.0	2.2	-2.4	1.1	0.95	0.45	-75.81	-75.81
540.0	0.79	59.69	540.0	540.0	1.9	-2.1	1.4	0.61	0.27	41.87	41.87
571.0	0.67	100.15	571.0	571.0	1.8	-2.0	1.8	1.67	-0.39	130.52	130.52
601.0	0.31	137.52	601.0	601.0	1.8	-2.1	2.0	1.55	-1.20	124.57	124.57
632.0	0.57	195.39	632.0	632.0	2.0	-2.3	2.0	1.56	0.84	186.68	186.68
661.0	0.57	190.25	661.0	661.0	2.3	-2.6	1.9	0.18	0.00	-17.72	-17.72
692.0	1.14	206.38	692.0	692.0	2.7	-3.1	1.8	1.98	1.84	52.03	52.03
723.0	2.19	192.69	723.0	723.0	3.6	-3.9	1.5	3.60	3.39	-44.16	-44.16

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<b>Well:</b> Tompkins 41A-08-07-95	<b>North Reference:</b> True
<b>Wellbore:</b> Wellbore #1	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> Actual	<b>Database:</b> MasterDB

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
753.0	3.16	197.24	752.9	5.0	-5.3	1.1	3.31	3.23	15.17	
784.0	3.87	193.55	783.9	6.9	-7.1	0.6	2.40	2.29	-11.90	
814.0	4.09	186.65	813.8	9.0	-9.1	0.3	1.76	0.73	-23.00	
844.0	4.39	184.19	843.7	11.2	-11.3	0.1	1.17	1.00	-8.20	
887.0	4.61	184.67	886.6	14.6	-14.7	-0.2	0.52	0.51	1.12	
930.0	4.75	186.56	929.4	18.1	-18.2	-0.5	0.48	0.33	4.40	
972.0	4.93	185.55	971.3	21.6	-21.7	-0.9	0.47	0.43	-2.40	
1,015.0	5.10	190.91	1,014.1	25.4	-25.4	-1.4	1.16	0.40	12.47	
1,057.0	5.63	202.16	1,055.9	29.2	-29.2	-2.6	2.80	1.26	26.79	
1,100.0	5.67	201.41	1,098.7	33.4	-33.1	-4.1	0.20	0.09	-1.74	
1,142.0	5.93	203.48	1,140.5	37.5	-37.0	-5.8	0.79	0.62	4.93	
1,171.0	6.28	200.71	1,169.3	40.5	-39.9	-6.9	1.58	1.21	-9.55	
1,214.0	6.51	198.53	1,212.1	45.2	-44.4	-8.5	0.78	0.53	-5.07	
1,256.0	6.28	198.16	1,253.8	49.8	-48.8	-10.0	0.56	-0.55	-0.88	
1,313.0	5.19	180.05	1,310.5	55.4	-54.4	-11.0	3.68	-1.91	-31.77	
1,356.0	4.14	167.96	1,353.4	58.8	-57.8	-10.7	3.33	-2.44	-28.12	
1,398.0	3.99	165.34	1,395.3	61.6	-60.7	-10.0	0.57	-0.36	-6.24	
1,441.0	3.52	176.98	1,438.2	64.2	-63.5	-9.5	2.08	-1.09	27.07	
1,484.0	3.69	182.25	1,481.1	66.9	-66.2	-9.5	0.87	0.40	12.26	
1,526.0	3.52	186.87	1,523.0	69.5	-68.8	-9.7	0.80	-0.40	11.00	
1,569.0	3.65	185.20	1,565.9	72.2	-71.5	-10.0	0.39	0.30	-3.88	
1,612.0	3.74	189.99	1,608.9	75.0	-74.3	-10.4	0.75	0.21	11.14	
1,654.0	4.13	196.36	1,650.8	77.8	-77.1	-11.0	1.39	0.93	15.17	
1,697.0	4.68	194.25	1,693.6	81.1	-80.2	-11.9	1.33	1.28	-4.91	
1,786.0	5.05	200.31	1,782.3	88.6	-87.4	-14.2	0.71	0.42	6.81	
1,871.0	5.45	189.15	1,867.0	96.3	-94.9	-16.1	1.29	0.47	-13.13	
1,957.0	6.55	189.24	1,952.5	105.3	-103.8	-17.5	1.28	1.28	0.10	

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<b>Design:</b>	Actual	<b>Database:</b>	MasterDB

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
2,042.0	6.33	187.96	2,036.9	114.8	-113.2	-19.0	0.31	-0.26	-1.51	
2,128.0	6.20	186.69	2,122.4	124.2	-122.5	-20.2	0.22	-0.15	-1.48	
2,213.0	5.93	187.88	2,207.0	133.2	-131.4	-21.3	0.35	-0.32	1.40	
2,298.0	5.83	186.64	2,291.5	141.9	-140.1	-22.4	0.19	-0.12	-1.46	
2,384.0	5.67	185.99	2,377.1	150.5	-148.6	-23.3	0.20	-0.19	-0.76	
2,469.0	5.58	194.64	2,461.7	158.8	-156.8	-24.8	1.00	-0.11	10.18	
2,554.0	5.59	192.72	2,546.3	167.0	-164.9	-26.8	0.22	0.01	-2.26	
2,640.0	5.39	192.34	2,631.9	175.2	-172.9	-28.6	0.24	-0.23	-0.44	
2,725.0	5.16	191.12	2,716.5	183.0	-180.5	-30.2	0.30	-0.27	-1.44	
2,811.0	4.92	191.39	2,802.2	190.6	-187.9	-31.6	0.28	-0.28	0.31	
2,896.0	4.85	191.79	2,886.9	197.8	-195.0	-33.1	0.09	-0.08	0.47	
2,982.0	4.75	189.85	2,972.6	205.0	-202.1	-34.4	0.22	-0.12	-2.26	
3,067.0	4.66	188.54	3,057.3	212.0	-209.0	-35.5	0.16	-0.11	-1.54	
3,152.0	4.60	187.52	3,142.0	218.8	-215.8	-36.5	0.12	-0.07	-1.20	
3,238.0	4.75	194.49	3,227.7	225.8	-222.6	-37.9	0.68	0.17	8.10	
3,323.0	4.64	192.99	3,312.4	232.7	-229.4	-39.5	0.19	-0.13	-1.76	
3,408.0	4.44	187.39	3,397.2	239.5	-236.0	-40.7	0.57	-0.24	-6.59	
3,494.0	4.22	184.36	3,482.9	245.9	-242.5	-41.4	0.37	-0.26	-3.52	
3,580.0	4.97	188.54	3,568.6	252.8	-249.3	-42.2	0.95	0.87	4.86	
3,665.0	4.83	186.60	3,653.3	260.1	-256.5	-43.1	0.26	-0.16	-2.28	
3,750.0	4.64	184.36	3,738.0	267.1	-263.5	-43.8	0.31	-0.22	-2.64	
3,836.0	5.71	191.57	3,823.7	274.8	-271.2	-44.9	1.45	1.24	8.38	
3,921.0	5.80	191.57	3,908.3	283.3	-279.5	-46.6	0.11	0.11	0.00	
4,006.0	5.49	190.34	3,992.9	291.7	-287.7	-48.2	0.39	-0.36	-1.45	
4,092.0	5.14	188.84	4,078.5	299.7	-295.6	-49.5	0.44	-0.41	-1.74	
4,177.0	4.79	187.74	4,163.2	307.0	-302.8	-50.6	0.43	-0.41	-1.29	
4,262.0	4.35	185.42	4,247.9	313.8	-309.6	-51.4	0.56	-0.52	-2.73	

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Survey										
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4,348.0	3.91	182.16	4,333.7	320.0	-315.7	-51.8	0.58	-0.51	-3.79	
4,433.0	3.38	179.39	4,418.5	325.3	-321.1	-51.9	0.66	-0.62	-3.26	
4,519.0	1.67	197.32	4,504.4	329.0	-324.9	-52.2	2.17	-1.99	20.85	
4,604.0	0.44	328.63	4,589.4	330.0	-325.8	-52.8	2.34	-1.45	154.48	
4,690.0	0.66	333.82	4,675.4	329.4	-325.1	-53.2	0.26	0.26	6.03	
4,775.0	0.70	334.57	4,760.4	328.5	-324.1	-53.6	0.05	0.05	0.88	
4,860.0	0.66	337.38	4,845.4	327.7	-323.2	-54.0	0.06	-0.05	3.31	
4,946.0	0.79	343.40	4,931.4	326.7	-322.2	-54.4	0.18	0.15	7.00	
5,031.0	0.92	353.29	5,016.4	325.5	-321.0	-54.6	0.23	0.15	11.64	
5,116.0	1.05	343.05	5,101.4	324.2	-319.5	-54.9	0.26	0.15	-12.05	
5,202.0	0.83	330.83	5,187.3	323.0	-318.2	-55.5	0.34	-0.26	-14.21	
5,287.0	0.22	121.04	5,272.3	322.6	-317.8	-55.6	1.21	-0.72	176.72	
5,373.0	0.20	156.10	5,358.3	322.7	-318.0	-55.4	0.15	-0.02	40.77	
5,458.0	0.04	167.18	5,443.3	322.9	-318.2	-55.4	0.19	-0.19	13.04	
5,543.0	0.26	296.95	5,528.3	322.9	-318.1	-55.5	0.34	0.26	152.67	
5,628.0	1.63	182.08	5,613.3	324.0	-319.2	-55.7	2.07	1.61	-135.14	
5,714.0	1.49	186.29	5,699.3	326.3	-321.6	-55.9	0.21	-0.16	4.90	
5,799.0	1.14	180.23	5,784.3	328.3	-323.5	-56.0	0.44	-0.41	-7.13	
5,884.0	1.05	174.17	5,869.3	329.9	-325.1	-56.0	0.17	-0.11	-7.13	
5,970.0	0.92	173.95	5,955.2	331.3	-326.6	-55.8	0.15	-0.15	-0.26	
6,055.0	0.87	181.15	6,040.2	332.6	-327.9	-55.7	0.14	-0.06	8.47	
6,141.0	0.79	174.69	6,126.2	333.8	-329.2	-55.7	0.14	-0.09	-7.51	
6,226.0	0.70	169.38	6,211.2	334.9	-330.3	-55.6	0.13	-0.11	-6.25	
6,312.0	0.66	217.50	6,297.2	335.8	-331.2	-55.8	0.65	-0.05	55.95	
6,397.0	0.66	262.41	6,382.2	336.4	-331.6	-56.5	0.59	0.00	52.84	
6,482.0	0.88	280.38	6,467.2	336.5	-331.6	-57.7	0.38	0.26	21.14	
6,568.0	0.75	300.73	6,553.2	336.3	-331.2	-58.8	0.37	-0.15	23.66	

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6,653.0	0.83	285.13	6,638.2	336.0	-330.7	-59.9	0.27	0.09	-18.35	
6,739.0	0.63	280.06	6,724.2	335.9	-330.5	-60.9	0.24	-0.23	-5.90	
6,824.0	0.44	280.91	6,809.2	335.9	-330.3	-61.7	0.22	-0.22	1.00	
<b>Last PZD Survey</b>										
6,900.0	0.44	280.91	6,885.2	335.9	-330.2	-62.3	0.00	0.00	0.00	
<b>Straight Line Projection to TD</b>										

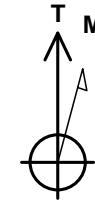
Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
6,824.0	6,809.2	-330.3	-61.7	Last PZD Survey	
6,900.0	6,885.2	-330.2	-62.3	Straight Line Projection to TD	

Checked By: _____	Approved By: _____	Date: _____
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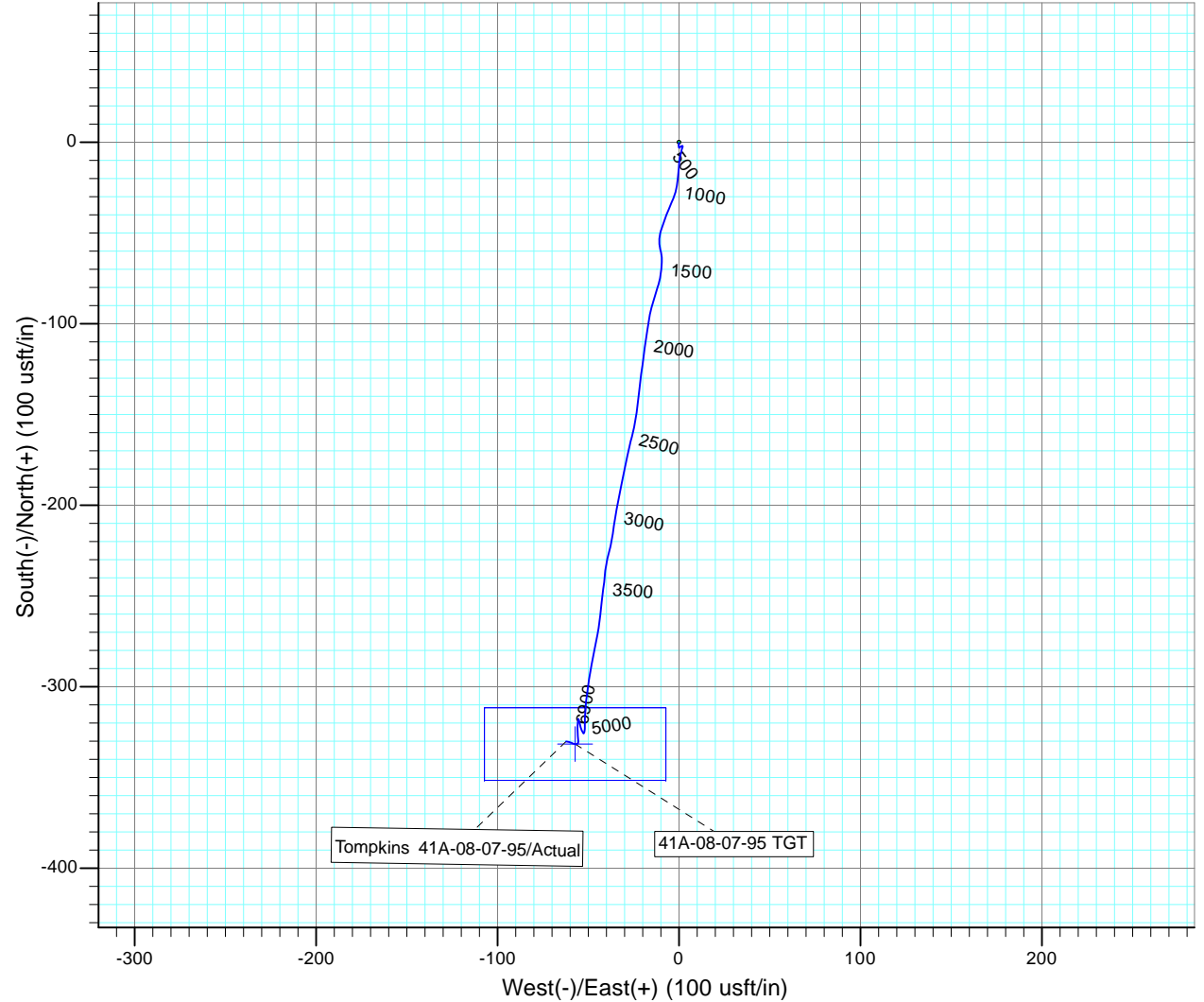
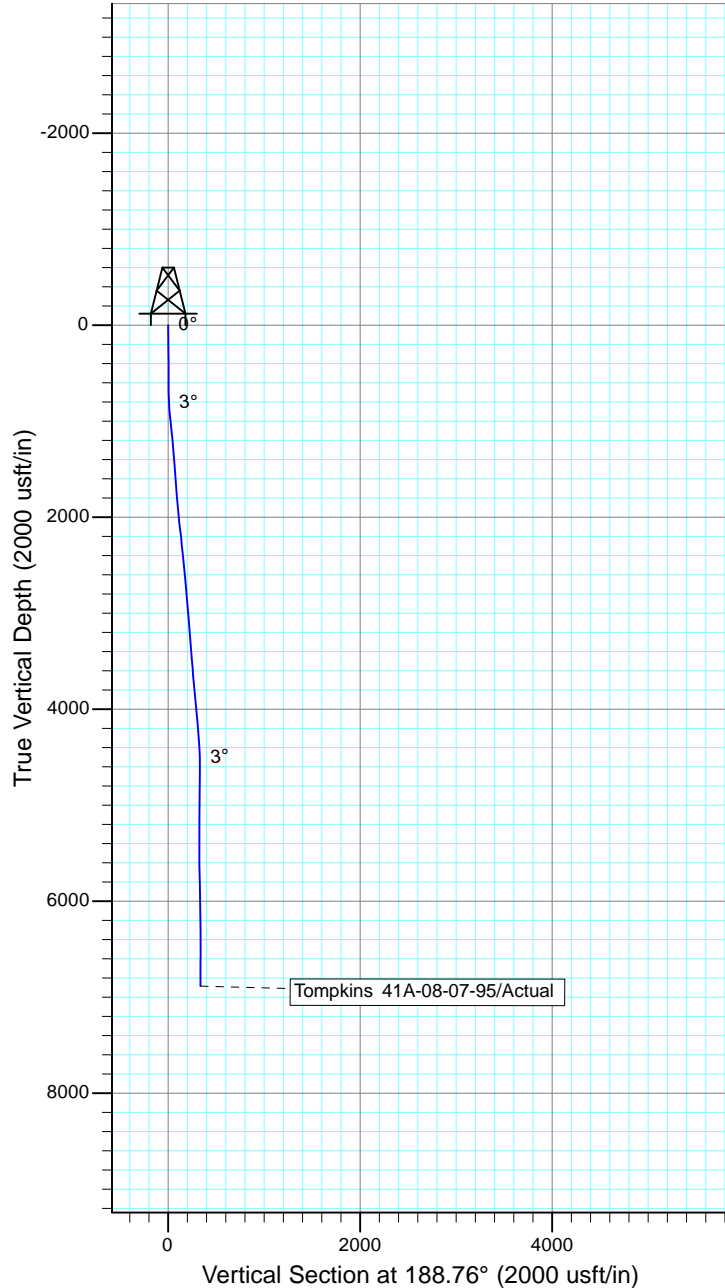
Project: Rockies Region  
 Site: Tompkins  
 Well: Tompkins 41A-08-07-95  
 Wellbore: Wellbore #1  
 SURVEY: Actual

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 41A-08-07-95/Wellbore #1)

Created By: Sarah Webb-Hudson Date: 6:53, July 11 2016  
 THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS  
 SUPPORTED BY ACTUAL FIELD DATA.