



# **Ursa Operating Company, LLC**

**Rockies Region**

**Tompkins**

**Tompkins 42C-08-07-95**

**Wellbore #1**

**Design: Actual**

## **End Of Well Report**

**21 August, 2016**



<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Tompkins 42C-08-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	Tompkins 42C-08-07-95 @ 5549.0usft (Capstar 321)
<b>Site:</b>	Tompkins	<b>MD Reference:</b>	Tompkins 42C-08-07-95 @ 5549.0usft (Capstar 321)
<b>Well:</b>	Tompkins 42C-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

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 42C-08-07-95, SHL LAT: 39.459960100 LONG: -108.013783700				
Well Position	+N/-S	0.0 usft	Northing:	1,602,238.80 usft	Latitude:	39° 27' 35.856 N
	+E/-W	0.0 usft	Easting:	2,290,336.39 usft	Longitude:	108° 0' 49.621 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	181.98

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<b>Well:</b>	Tompkins 42C-08-07-95	<b>North Reference:</b>	True
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Survey Program		Date	8/21/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
107.0	1,810.0	Surface (Wellbore #1)	MWD	MWD - Standard	
1,873.0	7,450.0	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	0.00
107.0	0.22	280.69	107.0	0.0	0.0	-0.2	0.21	0.21	0.00	0.00
136.0	0.14	296.63	136.0	-0.1	0.1	-0.3	0.32	-0.28	54.97	54.97
165.0	0.23	293.98	165.0	-0.1	0.1	-0.4	0.31	0.31	-9.14	-9.14
195.0	0.31	204.18	195.0	0.0	0.1	-0.5	1.28	0.27	-299.33	-299.33
226.0	0.57	181.77	226.0	0.2	-0.2	-0.5	0.99	0.84	-72.29	-72.29
256.0	0.75	182.78	256.0	0.5	-0.5	-0.5	0.60	0.60	3.37	3.37
287.0	0.77	169.21	287.0	0.9	-0.9	-0.5	0.58	0.06	-43.77	-43.77
318.0	0.79	173.15	318.0	1.4	-1.3	-0.4	0.18	0.06	12.71	12.71
348.0	0.83	188.67	348.0	1.8	-1.8	-0.4	0.74	0.13	51.73	51.73
378.0	0.92	188.84	378.0	2.2	-2.2	-0.5	0.30	0.30	0.57	0.57
409.0	1.77	173.05	409.0	3.0	-2.9	-0.5	2.97	2.74	-50.94	-50.94
439.0	2.81	174.25	439.0	4.1	-4.1	-0.3	3.47	3.47	4.00	4.00
470.0	3.79	170.00	469.9	5.9	-5.9	-0.1	3.26	3.16	-13.71	-13.71
500.0	4.97	172.67	499.8	8.1	-8.2	0.2	3.99	3.93	8.90	8.90
531.0	5.49	173.64	530.7	10.9	-11.0	0.6	1.70	1.68	3.13	3.13
562.0	6.15	178.03	561.5	14.1	-14.1	0.8	2.57	2.13	14.16	14.16
592.0	6.90	182.78	591.3	17.5	-17.5	0.8	3.08	2.50	15.83	15.83
622.0	7.95	182.30	621.1	21.3	-21.4	0.6	3.51	3.50	-1.60	-1.60
653.0	9.01	181.20	651.7	25.9	-25.9	0.5	3.46	3.42	-3.55	-3.55
683.0	9.84	182.73	681.3	30.8	-30.9	0.3	2.89	2.77	5.10	5.10

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<b>Well:</b>	Tompkins 42C-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)
714.0	11.07	183.61	711.8	36.5	-36.5	0.0	4.00	3.97	2.84
745.0	12.08	183.11	742.2	42.7	-42.7	-0.4	3.27	3.26	-1.61
775.0	13.36	183.22	771.4	49.3	-49.3	-0.8	4.27	4.27	0.37
806.0	14.63	184.32	801.5	56.8	-56.8	-1.2	4.19	4.10	3.55
836.0	15.80	183.63	830.5	64.6	-64.6	-1.8	3.95	3.90	-2.30
879.0	17.27	182.65	871.7	76.9	-76.8	-2.5	3.48	3.42	-2.28
922.0	18.46	182.34	912.6	90.1	-90.0	-3.0	2.78	2.77	-0.72
965.0	19.95	181.59	953.2	104.2	-104.1	-3.5	3.51	3.47	-1.74
1,008.0	21.40	182.56	993.5	119.4	-119.3	-4.1	3.46	3.37	2.26
1,050.0	22.94	182.25	1,032.4	135.2	-135.2	-4.7	3.68	3.67	-0.74
1,093.0	24.39	181.20	1,071.7	152.5	-152.4	-5.2	3.51	3.37	-2.44
1,136.0	25.88	181.68	1,110.7	170.8	-170.7	-5.7	3.50	3.47	1.12
1,178.0	27.38	180.67	1,148.2	189.6	-189.5	-6.1	3.73	3.57	-2.40
1,221.0	28.92	181.99	1,186.1	209.9	-209.8	-6.6	3.86	3.58	3.07
1,264.0	30.01	182.21	1,223.6	231.0	-230.9	-7.3	2.55	2.53	0.51
1,307.0	31.42	182.69	1,260.5	253.0	-252.8	-8.3	3.33	3.28	1.12
1,349.0	32.92	183.70	1,296.1	275.3	-275.2	-9.5	3.79	3.57	2.40
1,392.0	33.71	183.04	1,332.0	298.9	-298.7	-10.9	2.02	1.84	-1.53
1,435.0	34.23	182.25	1,367.7	323.0	-322.7	-12.0	1.59	1.21	-1.84
1,478.0	34.76	182.08	1,403.1	347.3	-347.1	-12.9	1.25	1.23	-0.40
1,520.0	34.76	180.67	1,437.6	371.3	-371.0	-13.5	1.91	0.00	-3.36
1,563.0	34.76	180.80	1,472.9	395.8	-395.5	-13.8	0.17	0.00	0.30
1,605.0	34.58	182.30	1,507.5	419.7	-419.4	-14.5	2.08	-0.43	3.57
1,648.0	34.23	182.34	1,543.0	444.0	-443.7	-15.5	0.82	-0.81	0.09
1,691.0	34.37	181.11	1,578.5	468.2	-467.9	-16.2	1.64	0.33	-2.86
1,733.0	34.61	181.39	1,613.1	492.0	-491.7	-16.7	0.68	0.57	0.67
1,776.0	35.28	181.66	1,648.3	516.6	-516.3	-17.4	1.60	1.56	0.63

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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)
1,810.0	35.42	181.86		1,676.1	536.3	-536.0	-18.0	0.53	0.41	0.59
Last PZD Surface Survey										
1,873.0	36.12	182.03		1,727.2	573.1	-572.8	-19.2	1.12	1.11	0.27
1,959.0	34.80	183.13		1,797.2	623.0	-622.6	-21.5	1.70	-1.53	1.28
2,044.0	35.60	182.78		1,866.7	672.0	-671.5	-24.0	0.97	0.94	-0.41
2,130.0	35.51	183.17		1,936.7	722.0	-721.5	-26.6	0.28	-0.10	0.45
2,215.0	35.53	182.45		2,005.9	771.3	-770.8	-29.0	0.49	0.02	-0.85
2,300.0	34.94	182.12		2,075.3	820.4	-819.8	-31.0	0.73	-0.69	-0.39
2,386.0	35.07	184.10		2,145.7	869.7	-869.1	-33.6	1.33	0.15	2.30
2,471.0	35.20	185.02		2,215.2	918.6	-917.8	-37.5	0.64	0.15	1.08
2,557.0	35.47	184.85		2,285.4	968.2	-967.4	-41.8	0.33	0.31	-0.20
2,642.0	35.90	182.69		2,354.4	1,017.8	-1,016.8	-45.1	1.57	0.51	-2.54
2,727.0	36.12	181.90		2,423.2	1,067.8	-1,066.8	-47.1	0.60	0.26	-0.93
2,813.0	36.69	182.12		2,492.4	1,118.8	-1,117.8	-48.8	0.68	0.66	0.26
2,898.0	35.86	181.28		2,560.9	1,169.1	-1,168.1	-50.3	1.14	-0.98	-0.99
2,984.0	36.25	182.25		2,630.5	1,219.7	-1,218.6	-51.9	0.80	0.45	1.13
3,069.0	35.51	181.77		2,699.3	1,269.5	-1,268.4	-53.7	0.93	-0.87	-0.56
3,154.0	35.29	183.09		2,768.6	1,318.8	-1,317.6	-55.7	0.94	-0.26	1.55
3,240.0	34.80	184.19		2,839.0	1,368.1	-1,366.9	-58.9	0.93	-0.57	1.28
3,325.0	35.33	184.99		2,908.6	1,416.9	-1,415.6	-62.8	0.83	0.62	0.94
3,411.0	35.90	184.10		2,978.5	1,466.9	-1,465.5	-66.7	0.90	0.66	-1.03
3,496.0	34.67	183.17		3,047.9	1,516.0	-1,514.5	-69.9	1.58	-1.45	-1.09
3,581.0	35.77	182.95		3,117.3	1,565.0	-1,563.4	-72.5	1.30	1.29	-0.26
3,667.0	35.11	182.60		3,187.4	1,614.9	-1,613.3	-74.9	0.80	-0.77	-0.41
3,752.0	35.86	181.81		3,256.6	1,664.2	-1,662.6	-76.8	1.03	0.88	-0.93
3,838.0	35.86	182.56		3,326.3	1,714.6	-1,712.9	-78.7	0.51	0.00	0.87
3,923.0	36.43	182.87		3,395.0	1,764.7	-1,763.0	-81.1	0.70	0.67	0.36

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4,009.0	35.20	182.03	3,464.7	1,815.1	-1,813.3	-83.2	1.54	-1.43	-0.98	
4,094.0	33.57	182.21	3,534.8	1,863.1	-1,861.2	-85.0	1.92	-1.92	0.21	
4,179.0	31.11	181.06	3,606.6	1,908.5	-1,906.7	-86.3	2.98	-2.89	-1.35	
4,265.0	30.06	180.89	3,680.7	1,952.3	-1,950.4	-87.1	1.23	-1.22	-0.20	
4,350.0	28.17	181.15	3,754.9	1,993.6	-1,991.8	-87.8	2.23	-2.22	0.31	
4,436.0	25.69	182.18	3,831.6	2,032.6	-2,030.7	-88.9	2.93	-2.88	1.20	
4,521.0	23.64	181.06	3,908.8	2,068.0	-2,066.2	-89.9	2.47	-2.41	-1.32	
4,606.0	21.45	179.70	3,987.3	2,100.6	-2,098.7	-90.2	2.65	-2.58	-1.60	
4,690.0	18.54	181.11	4,066.3	2,129.3	-2,127.5	-90.4	3.51	-3.46	1.68	
4,776.0	15.24	184.37	4,148.6	2,154.3	-2,152.4	-91.5	3.99	-3.84	3.79	
4,861.0	12.35	182.91	4,231.1	2,174.5	-2,172.6	-92.8	3.42	-3.40	-1.72	
4,946.0	10.20	183.53	4,314.5	2,191.2	-2,189.2	-93.7	2.53	-2.53	0.73	
5,030.0	7.03	182.78	4,397.5	2,203.7	-2,201.8	-94.4	3.78	-3.77	-0.89	
5,115.0	4.61	178.82	4,482.1	2,212.3	-2,210.4	-94.6	2.88	-2.85	-4.66	
5,200.0	2.55	173.11	4,566.9	2,217.6	-2,215.7	-94.3	2.46	-2.42	-6.72	
5,285.0	2.64	172.10	4,651.8	2,221.4	-2,219.5	-93.8	0.12	0.11	-1.19	
5,370.0	0.48	176.76	4,736.8	2,223.7	-2,221.8	-93.5	2.54	-2.54	5.48	
5,455.0	0.21	249.15	4,821.8	2,224.1	-2,222.2	-93.7	0.54	-0.32	85.16	
5,539.0	0.48	241.58	4,905.8	2,224.4	-2,222.4	-94.1	0.33	0.32	-9.01	
5,624.0	0.70	244.83	4,990.7	2,224.8	-2,222.8	-94.9	0.26	0.26	3.82	
5,709.0	0.97	232.48	5,075.7	2,225.5	-2,223.5	-95.9	0.38	0.32	-14.53	
5,794.0	0.35	345.35	5,160.7	2,225.7	-2,223.7	-96.6	1.36	-0.73	132.79	
5,879.0	0.48	352.06	5,245.7	2,225.1	-2,223.1	-96.7	0.16	0.15	7.89	
5,964.0	0.62	27.78	5,330.7	2,224.3	-2,222.3	-96.5	0.43	0.16	42.02	
6,049.0	0.21	359.11	5,415.7	2,223.7	-2,221.7	-96.3	0.53	-0.48	-33.73	
6,134.0	0.18	282.45	5,500.7	2,223.6	-2,221.6	-96.4	0.29	-0.04	-90.19	
6,218.0	0.22	208.49	5,584.7	2,223.7	-2,221.7	-96.6	0.29	0.05	-88.05	

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6,303.0	0.48	232.35	5,669.7	2,224.1	-2,222.0	-97.0	0.34	0.31	28.07	
6,389.0	0.97	234.19	5,755.7	2,224.7	-2,222.7	-97.9	0.57	0.57	2.14	
6,474.0	1.15	226.65	5,840.7	2,225.8	-2,223.7	-99.1	0.27	0.21	-8.87	
6,558.0	0.19	77.84	5,924.7	2,226.3	-2,224.2	-99.6	1.57	-1.14	-177.15	
6,643.0	0.09	247.16	6,009.7	2,226.3	-2,224.2	-99.5	0.33	-0.12	199.20	
6,728.0	0.57	216.92	6,094.7	2,226.7	-2,224.6	-99.8	0.58	0.56	-35.58	
6,813.0	0.75	235.64	6,179.7	2,227.4	-2,225.2	-100.5	0.33	0.21	22.02	
6,899.0	0.88	229.58	6,265.7	2,228.2	-2,226.0	-101.5	0.18	0.15	-7.05	
6,984.0	0.79	243.99	6,350.7	2,228.9	-2,226.7	-102.5	0.27	-0.11	16.95	
7,069.0	0.31	244.57	6,435.7	2,229.3	-2,227.0	-103.2	0.56	-0.56	0.68	
7,155.0	0.26	354.30	6,521.7	2,229.2	-2,226.9	-103.5	0.54	-0.06	127.59	
7,240.0	0.53	328.41	6,606.7	2,228.7	-2,226.4	-103.7	0.37	0.32	-30.46	
7,326.0	0.62	301.08	6,692.7	2,228.1	-2,225.8	-104.3	0.33	0.10	-31.78	
7,395.0	0.79	302.00	6,761.7	2,227.7	-2,225.4	-105.0	0.25	0.25	1.33	
Last PZD Survey										
7,450.0	0.79	302.00	6,816.7	2,227.3	-2,225.0	-105.7	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)		
1,810.0	1,676.1	-536.0	-18.0	Last PZD Surface Survey	

Checked By: _____	Approved By: _____	Date: _____
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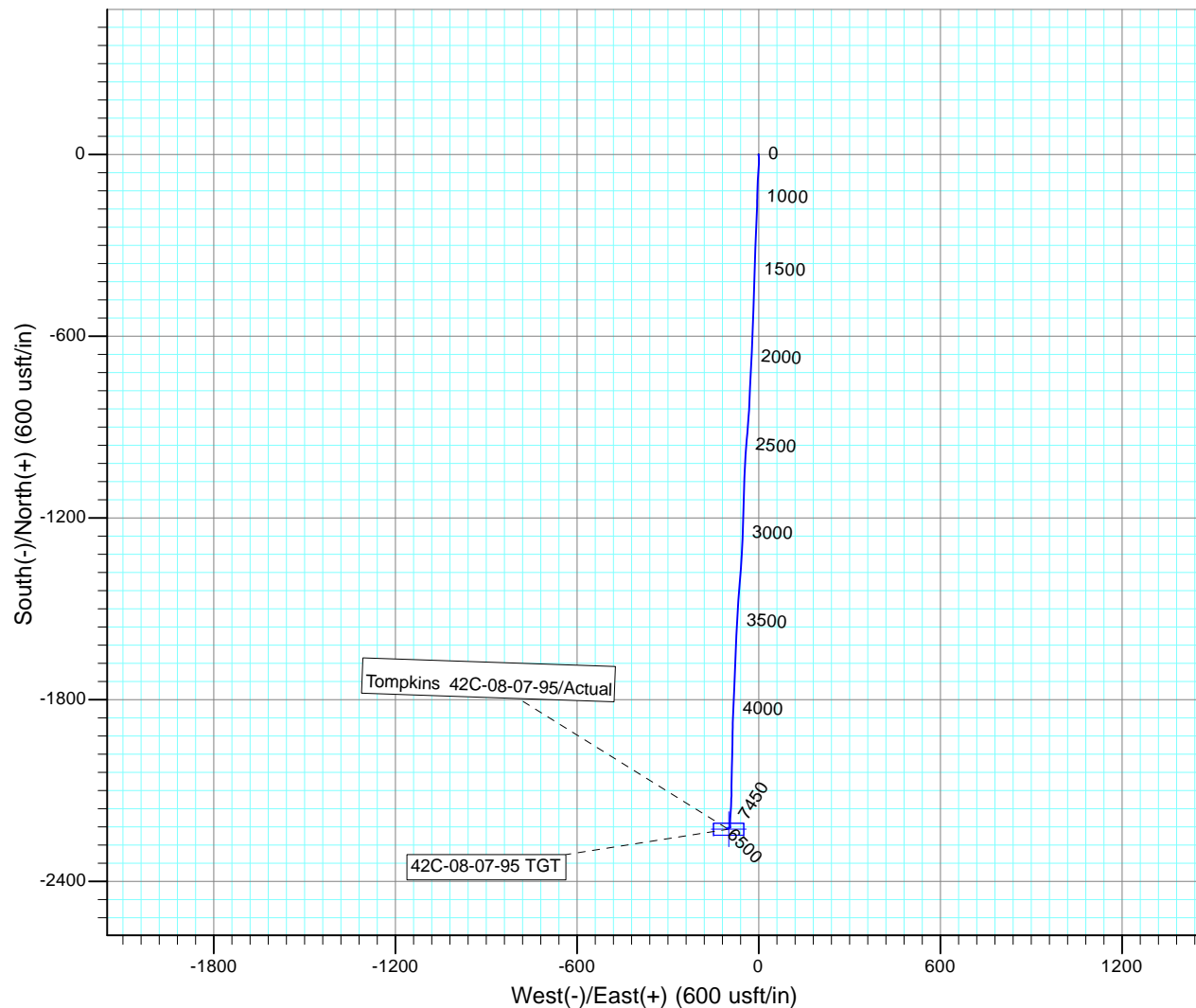
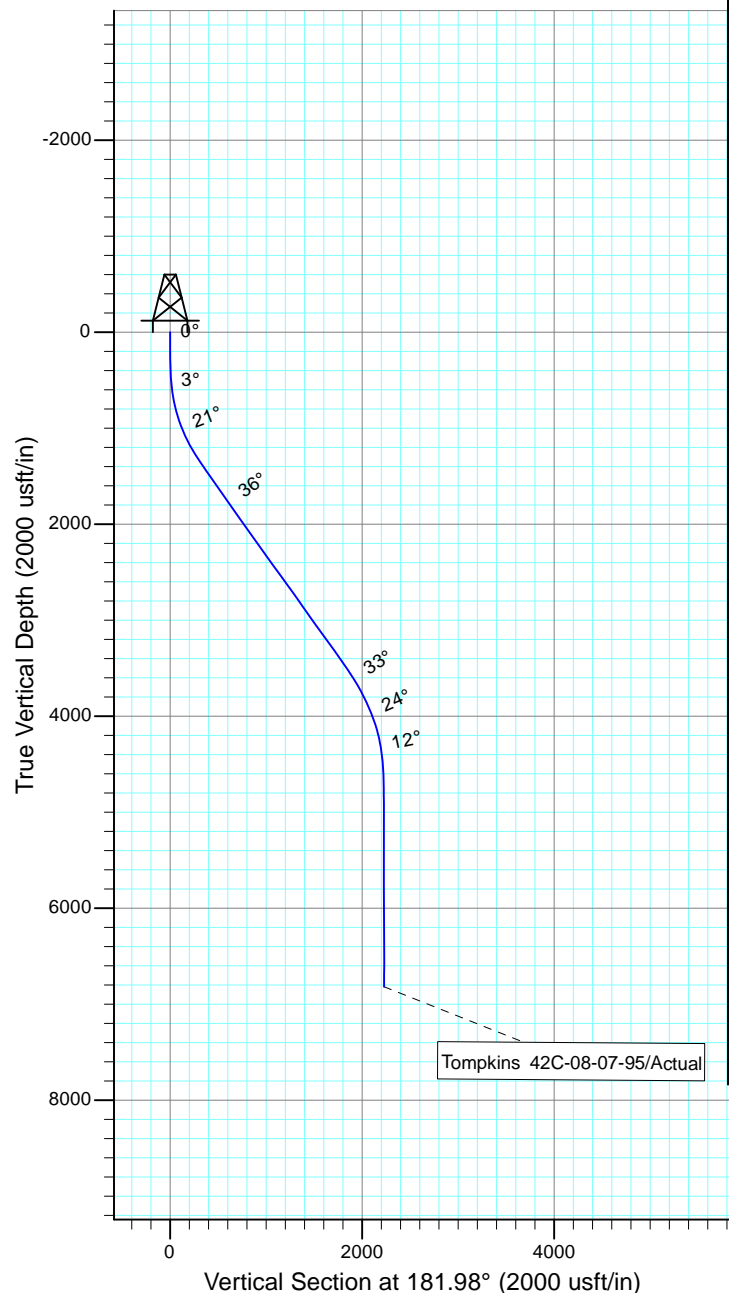
Project: Rockies Region  
 Site: Tompkins  
 Well: Tompkins 42C-08-07-95  
 Wellbore: Wellbore #1  
 SURVEY: Actual

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 42C-08-07-95/Wellbore #1)

Created By: Sarah Webb-Hudson Date: 19:31, August 21 2016  
 THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS  
 SUPPORTED BY ACTUAL FIELD DATA.