



Ursa Operating Company, LLC

Rockies Region

Tompkins

Tompkins 32A-08-07-95

Wellbore #1

Design: Actual

End Of Well Report

06 September, 2016



Company:	Ursa Operating Company, LLC	Local Co-ordinate Reference:	Well Tompkins 32A-08-07-95
Project:	Rockies Region	TVD Reference:	Tompkins 32A-08-07-95 @ 5549.0usft (Capstar 321)
Site:	Tompkins	MD Reference:	Tompkins 32A-08-07-95 @ 5549.0usft (Capstar 321)
Well:	Tompkins 32A-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 "	
				Grid Convergence:	-1.59 °

Well		Tompkins 32A-08-07-95, SHL LAT: 39.459964300 LONG: -108.014004900				
Well Position	+N/-S	0.0 usft	Northing:	1,602,242.06 usft	Latitude:	39° 27' 35.871 N
	+E/-W	0.0 usft	Easting:	2,290,274.00 usft	Longitude:	108° 0' 50.418 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	220.43

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Design:	Actual	Database:	MasterDB

Survey Program		Date 9/6/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
106.0	1,810.0	Surface (Wellbore #1)	MWD	MWD - Standard
1,914.0	7,410.0	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
106.0	0.53	226.77	106.0	0.5	-0.3	-0.4	0.50	0.50	0.00
136.0	0.57	215.43	136.0	0.8	-0.6	-0.5	0.39	0.13	-37.80
167.0	0.75	213.14	167.0	1.1	-0.8	-0.7	0.59	0.58	-7.39
197.0	0.88	221.36	197.0	1.6	-1.2	-1.0	0.58	0.43	27.40
227.0	1.01	223.69	227.0	2.0	-1.5	-1.3	0.45	0.43	7.77
257.0	0.75	216.79	257.0	2.5	-1.9	-1.6	0.93	-0.87	-23.00
288.0	0.75	227.33	288.0	2.9	-2.2	-1.9	0.44	0.00	34.00
318.0	0.79	246.59	318.0	3.3	-2.4	-2.2	0.87	0.13	64.20
349.0	0.57	241.79	349.0	3.6	-2.6	-2.6	0.73	-0.71	-15.48
380.0	0.87	242.48	380.0	4.0	-2.8	-2.9	0.97	0.97	2.23
410.0	1.36	208.49	410.0	4.5	-3.2	-3.3	2.68	1.63	-113.30
441.0	2.07	205.45	441.0	5.4	-4.0	-3.7	2.31	2.29	-9.81
471.0	3.16	198.99	470.9	6.7	-5.3	-4.2	3.76	3.63	-21.53
502.0	3.91	196.23	501.9	8.5	-7.1	-4.8	2.48	2.42	-8.90
533.0	4.79	203.56	532.8	10.7	-9.3	-5.6	3.35	2.84	23.65
563.0	5.98	207.92	562.6	13.4	-11.8	-6.8	4.19	3.97	14.53
593.0	6.90	210.77	592.5	16.7	-14.8	-8.5	3.25	3.07	9.50
624.0	8.26	213.10	623.2	20.8	-18.2	-10.7	4.50	4.39	7.52
654.0	9.32	212.57	652.8	25.3	-22.1	-13.1	3.54	3.53	-1.77
684.0	10.45	216.91	682.4	30.4	-26.3	-16.1	4.51	3.77	14.47

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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)	
715.0	11.34	218.86	712.8	36.3	-30.9	-19.7	3.11	2.87	6.29	
745.0	12.52	220.84	742.2	42.5	-35.7	-23.7	4.16	3.93	6.60	
776.0	13.93	220.70	772.4	49.6	-41.0	-28.3	4.55	4.55	-0.45	
806.0	15.21	222.75	801.4	57.1	-46.7	-33.3	4.60	4.27	6.83	
837.0	16.52	220.97	831.2	65.6	-53.0	-39.0	4.51	4.23	-5.74	
879.0	18.34	220.37	871.3	78.2	-62.5	-47.2	4.35	4.33	-1.43	
922.0	19.82	217.80	911.9	92.2	-73.4	-56.0	3.96	3.44	-5.98	
964.0	21.67	219.03	951.2	107.1	-85.1	-65.3	4.53	4.40	2.93	
1,007.0	23.16	217.14	990.9	123.5	-98.0	-75.4	3.85	3.47	-4.40	
1,050.0	25.02	218.85	1,030.2	141.0	-111.8	-86.2	4.62	4.33	3.98	
1,093.0	26.37	217.10	1,068.9	159.6	-126.5	-97.6	3.60	3.14	-4.07	
1,135.0	27.91	219.03	1,106.3	178.8	-141.6	-109.5	4.22	3.67	4.60	
1,178.0	28.92	218.68	1,144.1	199.2	-157.5	-122.3	2.38	2.35	-0.81	
1,221.0	30.37	220.22	1,181.5	220.5	-174.0	-135.8	3.81	3.37	3.58	
1,264.0	31.55	222.11	1,218.4	242.6	-190.6	-150.4	3.56	2.74	4.40	
1,306.0	32.40	223.45	1,254.0	264.8	-206.9	-165.5	2.64	2.02	3.19	
1,349.0	33.79	223.03	1,290.0	288.3	-224.0	-181.6	3.28	3.23	-0.98	
1,392.0	34.06	221.63	1,325.7	312.3	-241.8	-197.7	1.92	0.63	-3.26	
1,434.0	34.15	221.63	1,360.5	335.8	-259.4	-213.4	0.21	0.21	0.00	
1,477.0	34.45	220.31	1,396.0	360.0	-277.7	-229.3	1.87	0.70	-3.07	
1,520.0	33.84	221.98	1,431.6	384.2	-295.8	-245.1	2.60	-1.42	3.88	
1,562.0	33.58	222.74	1,466.5	407.5	-313.1	-260.8	1.18	-0.62	1.81	
1,605.0	33.98	222.34	1,502.3	431.4	-330.7	-277.0	1.06	0.93	-0.93	
1,648.0	33.76	221.84	1,538.0	455.3	-348.5	-293.1	0.83	-0.51	-1.16	
1,690.0	34.41	221.80	1,572.8	478.8	-366.0	-308.8	1.55	1.55	-0.10	
1,733.0	34.51	220.83	1,608.2	503.2	-384.3	-324.8	1.30	0.23	-2.26	
1,776.0	34.63	221.49	1,643.6	527.6	-402.7	-340.9	0.91	0.28	1.53	

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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)	
1,810.0	34.85	222.29	1,671.6	546.9	-417.1	-353.8	1.49	0.65	2.35	
Last PZD Surface Survey										
1,914.0	34.37	219.08	1,757.2	606.0	-461.8	-392.3	1.81	-0.46	-3.09	
2,000.0	33.49	219.47	1,828.5	654.0	-499.0	-422.7	1.05	-1.02	0.45	
2,085.0	32.52	219.07	1,899.8	700.3	-534.9	-452.0	1.17	-1.14	-0.47	
2,170.0	31.54	218.81	1,971.9	745.3	-569.9	-480.3	1.16	-1.15	-0.31	
2,256.0	31.95	218.46	2,045.0	790.6	-605.3	-508.6	0.52	0.48	-0.41	
2,341.0	32.81	217.23	2,116.8	836.0	-641.2	-536.5	1.27	1.01	-1.45	
2,427.0	33.79	217.01	2,188.7	883.2	-678.9	-565.0	1.15	1.14	-0.26	
2,512.0	33.57	218.46	2,259.4	930.2	-716.1	-593.9	0.98	-0.26	1.71	
2,598.0	33.79	217.57	2,331.0	977.9	-753.7	-623.2	0.63	0.26	-1.03	
2,683.0	34.15	218.02	2,401.5	1,025.3	-791.2	-652.3	0.52	0.42	0.53	
2,768.0	34.15	219.25	2,471.8	1,073.0	-828.5	-682.1	0.81	0.00	1.45	
2,854.0	34.32	218.73	2,542.9	1,121.4	-866.1	-712.6	0.39	0.20	-0.60	
2,939.0	34.59	218.78	2,613.0	1,169.5	-903.6	-742.7	0.32	0.32	0.06	
3,025.0	34.66	218.16	2,683.8	1,218.3	-941.9	-773.1	0.42	0.08	-0.72	
3,110.0	34.54	219.12	2,753.7	1,266.5	-979.6	-803.2	0.66	-0.14	1.13	
3,195.0	33.49	218.64	2,824.2	1,314.1	-1,016.6	-833.1	1.28	-1.24	-0.56	
3,281.0	34.02	220.06	2,895.7	1,361.9	-1,053.5	-863.4	1.11	0.62	1.65	
3,366.0	32.96	220.18	2,966.6	1,408.8	-1,089.4	-893.6	1.25	-1.25	0.14	
3,451.0	33.08	219.31	3,037.8	1,455.1	-1,125.0	-923.2	0.58	0.14	-1.02	
3,537.0	33.05	217.76	3,109.9	1,502.0	-1,161.7	-952.4	0.98	-0.03	-1.80	
3,622.0	32.92	217.41	3,181.2	1,548.2	-1,198.4	-980.6	0.27	-0.15	-0.41	
3,707.0	32.21	218.24	3,252.8	1,593.9	-1,234.5	-1,008.7	0.99	-0.84	0.98	
3,792.0	33.00	218.46	3,324.5	1,639.7	-1,270.4	-1,037.1	0.94	0.93	0.26	
3,878.0	33.39	219.76	3,396.4	1,686.7	-1,307.0	-1,066.8	0.94	0.45	1.51	
3,963.0	32.74	221.32	3,467.7	1,733.1	-1,342.2	-1,097.0	1.26	-0.76	1.84	

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4,049.0	31.03	220.92	3,540.7	1,778.5	-1,376.4	-1,126.8	2.00	-1.99	-0.47	
4,134.0	29.27	220.35	3,614.2	1,821.2	-1,408.8	-1,154.6	2.10	-2.07	-0.67	
4,219.0	27.47	219.34	3,689.0	1,861.6	-1,439.8	-1,180.5	2.19	-2.12	-1.19	
4,305.0	26.04	218.53	3,765.8	1,900.3	-1,469.9	-1,204.9	1.72	-1.66	-0.94	
4,390.0	24.83	217.54	3,842.5	1,936.8	-1,498.7	-1,227.4	1.51	-1.42	-1.16	
4,475.0	22.32	217.98	3,920.4	1,970.7	-1,525.6	-1,248.2	2.96	-2.95	0.52	
4,561.0	19.22	217.82	4,000.8	2,001.2	-1,549.6	-1,266.9	3.61	-3.60	-0.19	
4,646.0	16.77	217.03	4,081.7	2,027.4	-1,570.5	-1,282.9	2.90	-2.88	-0.93	
4,732.0	13.89	216.61	4,164.6	2,050.1	-1,588.7	-1,296.5	3.35	-3.35	-0.49	
4,817.0	10.85	216.88	4,247.6	2,068.3	-1,603.3	-1,307.4	3.58	-3.58	0.32	
4,903.0	8.89	216.08	4,332.3	2,083.0	-1,615.1	-1,316.2	2.28	-2.28	-0.93	
4,988.0	7.38	215.83	4,416.5	2,095.0	-1,624.8	-1,323.2	1.78	-1.78	-0.29	
5,074.0	6.59	214.42	4,501.8	2,105.4	-1,633.4	-1,329.2	0.94	-0.92	-1.64	
5,159.0	4.44	217.85	4,586.4	2,113.5	-1,640.0	-1,334.0	2.56	-2.53	4.04	
5,244.0	2.33	206.29	4,671.3	2,118.5	-1,644.2	-1,336.8	2.60	-2.48	-13.60	
5,330.0	1.85	202.73	4,757.2	2,121.5	-1,647.0	-1,338.1	0.58	-0.56	-4.14	
5,415.0	1.85	206.86	4,842.2	2,124.1	-1,649.5	-1,339.3	0.16	0.00	4.86	
5,500.0	0.13	246.72	4,927.2	2,125.6	-1,650.8	-1,340.0	2.06	-2.02	46.89	
5,585.0	0.50	16.17	5,012.2	2,125.3	-1,650.4	-1,340.0	0.70	0.44	152.29	
5,671.0	0.53	18.82	5,098.2	2,124.6	-1,649.7	-1,339.7	0.04	0.03	3.08	
5,756.0	0.40	21.50	5,183.2	2,123.9	-1,649.0	-1,339.5	0.16	-0.15	3.15	
5,842.0	0.31	55.34	5,269.1	2,123.4	-1,648.6	-1,339.2	0.26	-0.10	39.35	
5,927.0	0.35	68.78	5,354.1	2,123.0	-1,648.4	-1,338.8	0.10	0.05	15.81	
6,012.0	0.35	75.51	5,439.1	2,122.5	-1,648.3	-1,338.3	0.05	0.00	7.92	
6,098.0	0.09	112.60	5,525.1	2,122.3	-1,648.2	-1,337.9	0.33	-0.30	43.13	
6,183.0	0.35	181.64	5,610.1	2,122.5	-1,648.5	-1,337.9	0.39	0.31	81.22	
6,269.0	0.53	157.64	5,696.1	2,122.9	-1,649.1	-1,337.7	0.30	0.21	-27.91	

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6,354.0	0.79	151.64	5,781.1	2,123.3	-1,650.0	-1,337.3	0.32	0.31	-7.06
6,439.0	0.97	168.41	5,866.1	2,123.9	-1,651.2	-1,336.9	0.37	0.21	19.73
6,525.0	0.97	149.82	5,952.1	2,124.6	-1,652.6	-1,336.4	0.36	0.00	-21.62
6,610.0	0.76	237.62	6,037.1	2,125.4	-1,653.5	-1,336.5	1.42	-0.25	103.29
6,696.0	0.88	237.05	6,123.1	2,126.6	-1,654.2	-1,337.5	0.14	0.14	-0.66
6,781.0	1.45	197.10	6,208.1	2,128.2	-1,655.5	-1,338.4	1.13	0.67	-47.00
6,866.0	1.45	178.21	6,293.1	2,130.0	-1,657.6	-1,338.7	0.56	0.00	-22.22
6,952.0	1.01	251.29	6,379.0	2,131.4	-1,659.0	-1,339.4	1.75	-0.51	84.98
7,037.0	1.85	248.13	6,464.0	2,133.3	-1,659.7	-1,341.3	0.99	0.99	-3.72
7,123.0	2.20	236.35	6,550.0	2,136.1	-1,661.2	-1,344.0	0.63	0.41	-13.70
7,208.0	2.24	233.40	6,634.9	2,139.3	-1,663.1	-1,346.7	0.14	0.05	-3.47
7,293.0	2.11	232.09	6,719.8	2,142.4	-1,665.0	-1,349.3	0.16	-0.15	-1.54
7,355.0	1.93	231.29	6,781.8	2,144.6	-1,666.4	-1,351.0	0.29	-0.29	-1.29
Last PZD Survey									
7,410.0	1.93	231.29	6,836.8	2,146.4	-1,667.5	-1,352.4	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	1,671.6	-417.1	-353.8	Last PZD Surface Survey
7,355.0	6,781.8	-1,666.4	-1,351.0	Last PZD Survey
7,410.0	6,836.8	-1,667.5	-1,352.4	Straight Line Projection to TD

Checked By: _____ Approved By: _____ Date: _____



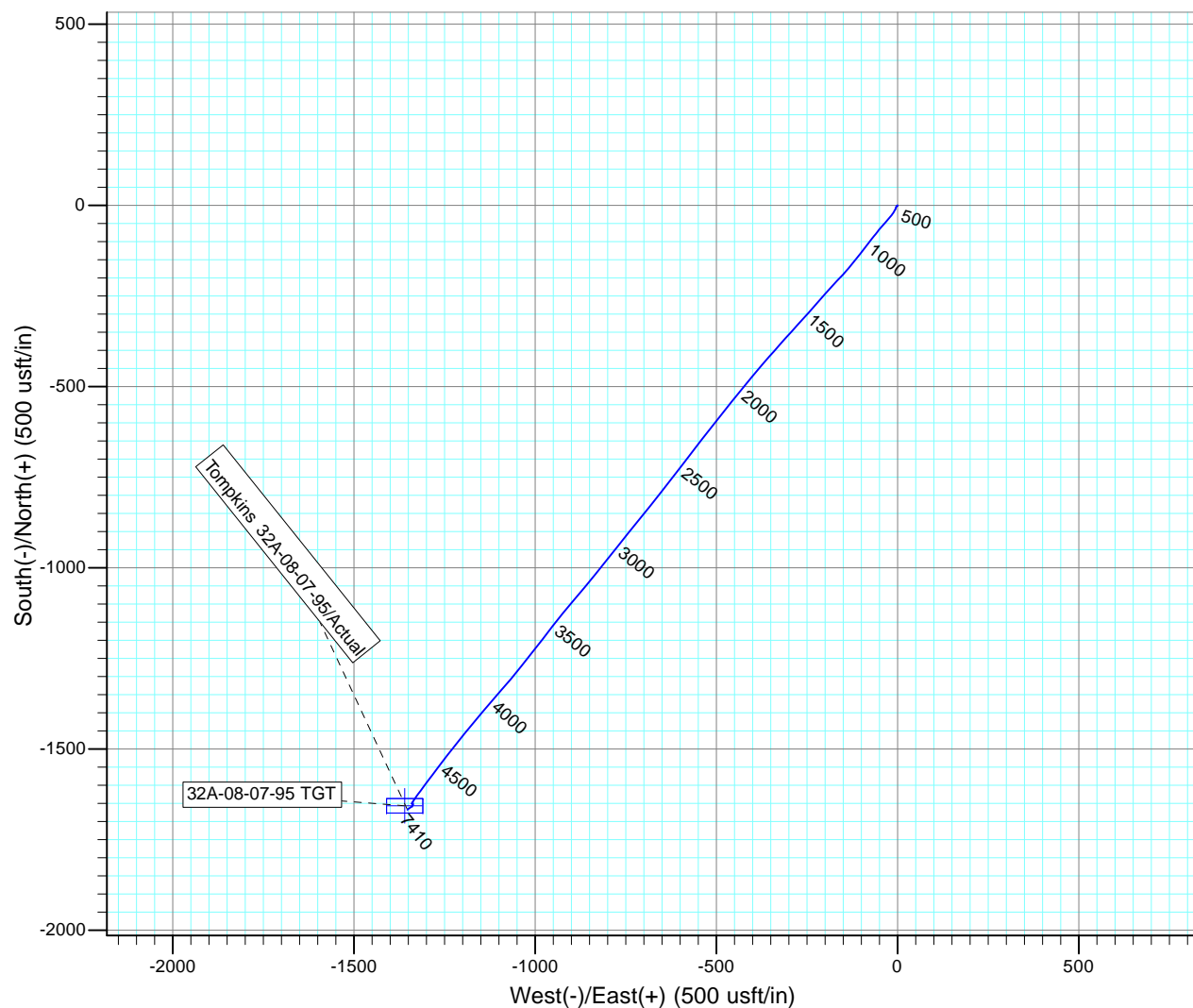
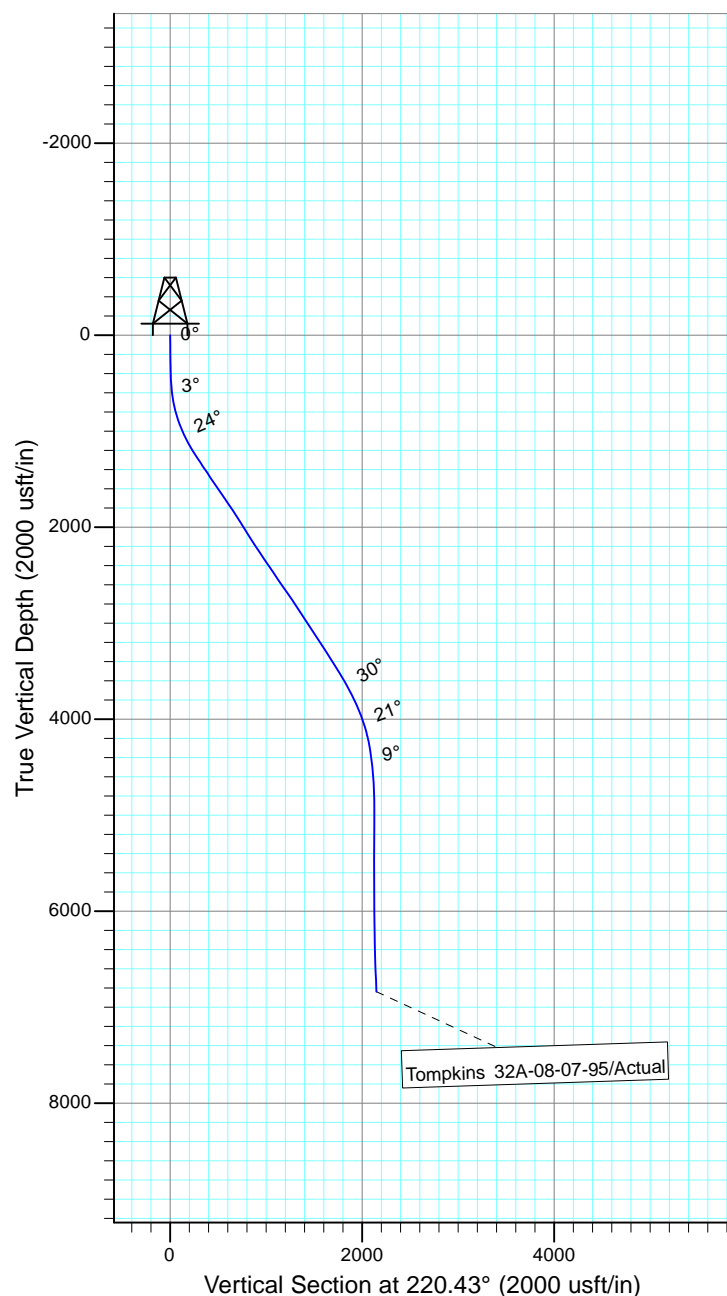
Project: Rockies Region
Site: Tompkins
Well: Tompkins 32A-08-07-95
Wellbore: Wellbore #1
SURVEY: Actual

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 32A-08-07-95/Wellbore #1)

Created By: Sarah Webb-Hudson Date: 17:28, September 06 2016
THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS
SUPPORTED BY ACTUAL FIELD DATA.