



Ursa Operating Company, LLC

Rockies Region

Tompkins

Tompkins 31B-08-07-95

Wellbore #1

Design: Actual

Ursa Operating Company LLC Planning Report

04 August, 2016



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

Well	Tompkins 31B-08-07-95, SHL LAT: 39.460028600 LONG: -108.014135600					
Well Position	+N/-S	0.0 usft	Northing:	1,602,266.49 usft	Latitude:	39° 27' 36.103 N
	+E/-W	0.0 usft	Easting:	2,290,237.76 usft	Longitude:	108° 0' 50.888 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	242.01	

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Survey Program		Date		8/4/2016	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
109.0	1,738.0	Surface (Wellbore #1)	MWD	MWD - Standard	
1,738.0	7,145.0	Production (Wellbore #1)	MWD	MWD - Standard	

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.00	0.0	-5,549.0	0.0	0.0	0.0	1,602,266.49	2,290,237.76
109.0	0.18	305.65	109.0	-5,440.0	0.1	-0.1	0.1	0.17	1,602,266.59	2,290,237.62
139.0	0.22	344.94	139.0	-5,410.0	0.2	-0.2	0.1	0.47	1,602,266.68	2,290,237.57
170.0	0.06	314.93	170.0	-5,379.0	0.3	-0.2	0.1	0.55	1,602,266.75	2,290,237.55
200.0	0.00	226.77	200.0	-5,349.0	0.3	-0.2	0.1	0.20	1,602,266.76	2,290,237.54
230.0	0.04	40.44	230.0	-5,319.0	0.3	-0.2	0.1	0.13	1,602,266.77	2,290,237.54
260.0	0.44	319.76	260.0	-5,289.0	0.4	-0.3	0.1	1.45	1,602,266.87	2,290,237.48
291.0	0.47	323.07	291.0	-5,258.0	0.6	-0.4	0.1	0.13	1,602,267.06	2,290,237.33
321.0	0.35	292.47	321.0	-5,228.0	0.7	-0.6	0.2	0.82	1,602,267.20	2,290,237.18
352.0	0.54	340.79	352.0	-5,197.0	0.9	-0.7	0.2	1.30	1,602,267.38	2,290,237.04
383.0	0.04	339.71	383.0	-5,166.0	1.0	-0.8	0.2	1.61	1,602,267.53	2,290,237.00
413.0	0.04	206.64	413.0	-5,136.0	1.0	-0.8	0.2	0.24	1,602,267.53	2,290,236.99
444.0	0.88	186.12	444.0	-5,105.0	0.8	-0.8	0.4	2.72	1,602,267.28	2,290,236.95
474.0	1.01	173.95	474.0	-5,075.0	0.3	-0.8	0.6	0.79	1,602,266.79	2,290,236.94
505.0	1.01	194.64	505.0	-5,044.0	-0.3	-0.9	0.9	1.17	1,602,266.26	2,290,236.89
536.0	1.07	191.49	536.0	-5,013.0	-0.8	-1.0	1.3	0.27	1,602,265.71	2,290,236.74
566.0	0.97	188.54	566.0	-4,983.0	-1.3	-1.1	1.6	0.38	1,602,265.19	2,290,236.64
596.0	1.01	192.31	596.0	-4,953.0	-1.8	-1.2	1.9	0.25	1,602,264.68	2,290,236.53
627.0	1.05	196.23	627.0	-4,922.0	-2.4	-1.3	2.3	0.26	1,602,264.15	2,290,236.38
657.0	1.27	190.47	657.0	-4,892.0	-3.0	-1.5	2.7	0.83	1,602,263.56	2,290,236.22
687.0	1.63	223.52	687.0	-4,862.0	-3.6	-1.8	3.3	2.98	1,602,262.93	2,290,235.85

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Well:	Tompkins 31B-08-07-95	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Actual	Database:	MasterDB

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
718.0	2.68	231.34	717.9	-4,831.1	-4.4	-2.7	4.4	3.51	1,602,262.18	2,290,234.96	
748.0	3.74	226.59	747.9	-4,801.1	-5.5	-3.9	6.1	3.64	1,602,261.11	2,290,233.67	
779.0	4.09	227.78	778.8	-4,770.2	-6.9	-5.5	8.1	1.16	1,602,259.72	2,290,232.08	
809.0	4.83	233.18	808.7	-4,740.3	-8.4	-7.3	10.4	2.83	1,602,258.29	2,290,230.24	
839.0	5.46	235.03	838.6	-4,710.4	-10.0	-9.5	13.1	2.17	1,602,256.78	2,290,228.01	
882.0	6.68	240.96	881.4	-4,667.6	-12.4	-13.3	17.6	3.19	1,602,254.50	2,290,224.08	
925.0	8.09	244.04	924.0	-4,625.0	-14.9	-18.2	23.1	3.40	1,602,252.10	2,290,219.11	
968.0	9.71	244.48	966.5	-4,582.5	-17.8	-24.2	29.8	3.77	1,602,249.38	2,290,213.04	
1,010.0	11.34	242.06	1,007.8	-4,541.2	-21.3	-31.1	37.4	4.02	1,602,246.10	2,290,206.10	
1,053.0	13.36	241.58	1,049.8	-4,499.2	-25.6	-39.2	46.6	4.70	1,602,241.99	2,290,197.88	
1,096.0	14.63	242.90	1,091.5	-4,457.5	-30.4	-48.4	57.0	3.05	1,602,237.40	2,290,188.54	
1,139.0	15.82	246.02	1,133.0	-4,416.0	-35.3	-58.6	68.3	3.36	1,602,232.83	2,290,178.22	
1,181.0	17.27	245.01	1,173.2	-4,375.8	-40.3	-69.5	80.2	3.52	1,602,228.17	2,290,167.21	
1,224.0	18.11	244.48	1,214.2	-4,334.8	-45.8	-81.3	93.3	1.99	1,602,222.93	2,290,155.24	
1,267.0	19.64	245.62	1,254.9	-4,294.1	-51.7	-93.9	107.2	3.66	1,602,217.42	2,290,142.47	
1,310.0	20.35	244.08	1,295.3	-4,253.7	-57.9	-107.2	121.9	2.06	1,602,211.53	2,290,129.00	
1,352.0	21.45	245.01	1,334.5	-4,214.5	-64.4	-120.7	136.8	2.74	1,602,205.47	2,290,115.29	
1,395.0	22.63	244.04	1,374.4	-4,174.6	-71.3	-135.3	152.9	2.87	1,602,198.94	2,290,100.54	
1,438.0	23.20	243.38	1,414.0	-4,135.0	-78.7	-150.3	169.7	1.45	1,602,191.94	2,290,085.33	
1,480.0	23.20	241.67	1,452.6	-4,096.4	-86.4	-165.0	186.2	1.60	1,602,184.72	2,290,070.45	
1,523.0	23.33	243.34	1,492.1	-4,056.9	-94.2	-180.0	203.2	1.56	1,602,177.30	2,290,055.17	
1,566.0	23.91	242.50	1,531.5	-4,017.5	-102.1	-195.4	220.4	1.56	1,602,169.88	2,290,039.62	
1,609.0	24.52	242.98	1,570.7	-3,978.3	-110.1	-211.1	238.1	1.49	1,602,162.24	2,290,023.73	
1,651.0	24.61	240.38	1,608.9	-3,940.1	-118.4	-226.4	255.5	2.58	1,602,154.38	2,290,008.14	
1,694.0	25.12	240.82	1,647.9	-3,901.1	-127.3	-242.2	273.6	1.26	1,602,145.95	2,289,992.15	
1,738.0	24.92	240.22	1,687.8	-3,861.2	-136.4	-258.4	292.2	0.73	1,602,137.24	2,289,975.70	
Last PZD Survey											

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Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
1,829.0	24.70	238.85	1,770.4	-3,778.6	-155.8	-291.3	330.3	0.68	1,602,118.80	2,289,942.26	
1,914.0	24.92	243.20	1,847.6	-3,701.4	-173.1	-322.5	366.0	2.16	1,602,102.41	2,289,910.61	
1,999.0	25.71	243.56	1,924.4	-3,624.6	-189.4	-355.0	402.3	0.95	1,602,087.03	2,289,877.68	
2,085.0	26.34	242.92	2,001.7	-3,547.3	-206.3	-388.7	440.0	0.80	1,602,070.98	2,289,843.53	
2,170.0	25.80	243.16	2,078.0	-3,471.0	-223.3	-422.0	477.4	0.65	1,602,054.97	2,289,809.78	
2,256.0	25.98	244.07	2,155.4	-3,393.6	-240.0	-455.6	514.9	0.51	1,602,039.22	2,289,775.69	
2,341.0	25.05	243.34	2,232.1	-3,316.9	-256.2	-488.4	551.5	1.15	1,602,023.92	2,289,742.43	
2,427.0	25.75	243.91	2,309.8	-3,239.2	-272.6	-521.5	588.4	0.86	1,602,008.46	2,289,708.94	
2,512.0	25.66	241.58	2,386.4	-3,162.6	-289.4	-554.2	625.3	1.19	1,601,992.49	2,289,675.72	
2,597.0	24.79	241.14	2,463.3	-3,085.7	-306.8	-586.0	661.5	1.05	1,601,976.02	2,289,643.46	
2,683.0	24.83	242.37	2,541.4	-3,007.6	-323.9	-617.8	697.6	0.60	1,601,959.83	2,289,611.21	
2,768.0	25.58	246.15	2,618.3	-2,930.7	-339.6	-650.4	733.7	2.09	1,601,945.04	2,289,578.19	
2,854.0	25.93	244.43	2,695.7	-2,853.3	-355.2	-684.4	771.0	0.96	1,601,930.36	2,289,543.83	
2,939.0	26.24	243.82	2,772.1	-2,776.9	-371.5	-718.0	808.4	0.48	1,601,914.98	2,289,509.76	
3,025.0	27.11	243.86	2,848.9	-2,700.1	-388.5	-752.6	847.0	1.01	1,601,898.93	2,289,474.65	
3,109.0	26.02	243.77	2,924.0	-2,625.0	-405.1	-786.4	884.5	1.30	1,601,883.29	2,289,440.50	
3,195.0	24.87	243.95	3,001.7	-2,547.3	-421.4	-819.5	921.4	1.34	1,601,867.94	2,289,406.89	
3,280.0	25.23	243.75	3,078.7	-2,470.3	-437.3	-851.8	957.4	0.44	1,601,852.97	2,289,374.16	
3,366.0	24.35	241.89	3,156.8	-2,392.2	-453.7	-883.9	993.5	1.37	1,601,837.41	2,289,341.64	
3,451.0	23.82	243.16	3,234.4	-2,314.6	-469.7	-914.7	1,028.1	0.87	1,601,822.26	2,289,310.43	
3,536.0	24.21	240.87	3,312.0	-2,237.0	-486.0	-945.2	1,062.7	1.19	1,601,806.88	2,289,279.46	
3,622.0	24.74	238.86	3,390.3	-2,158.7	-503.8	-976.0	1,098.3	1.15	1,601,789.85	2,289,248.17	
3,707.0	23.29	238.37	3,467.9	-2,081.1	-521.9	-1,005.6	1,132.9	1.72	1,601,772.66	2,289,218.15	
3,793.0	23.57	239.84	3,546.9	-2,002.1	-539.4	-1,034.9	1,167.0	0.75	1,601,755.92	2,289,188.33	
3,878.0	23.95	240.87	3,624.6	-1,924.4	-556.3	-1,064.7	1,201.2	0.66	1,601,739.82	2,289,158.11	
3,964.0	24.65	243.86	3,703.0	-1,846.0	-572.7	-1,096.0	1,236.6	1.65	1,601,724.29	2,289,126.32	
4,049.0	23.55	245.53	3,780.6	-1,768.4	-587.6	-1,127.4	1,271.3	1.52	1,601,710.32	2,289,094.55	

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4,135.0	22.19	243.73	3,859.9	-1,689.1	-601.9	-1,157.6	1,304.7	1.78	1,601,696.86	2,289,063.96	
4,220.0	20.65	244.52	3,939.0	-1,610.0	-615.4	-1,185.5	1,335.7	1.84	1,601,684.08	2,289,035.67	
4,305.0	18.66	242.11	4,019.0	-1,530.0	-628.3	-1,211.1	1,364.3	2.53	1,601,671.98	2,289,009.77	
4,391.0	17.45	243.56	4,100.8	-1,448.2	-640.4	-1,234.8	1,390.9	1.50	1,601,660.47	2,288,985.74	
4,476.0	15.69	241.53	4,182.3	-1,366.7	-651.6	-1,256.3	1,415.1	2.18	1,601,649.91	2,288,963.92	
4,562.0	12.53	243.36	4,265.7	-1,283.3	-661.3	-1,274.9	1,436.1	3.71	1,601,640.70	2,288,945.10	
4,647.0	9.80	244.17	4,349.0	-1,200.0	-668.6	-1,289.6	1,452.6	3.22	1,601,633.82	2,288,930.14	
4,732.0	7.43	248.56	4,433.1	-1,115.9	-673.8	-1,301.2	1,465.2	2.89	1,601,628.99	2,288,918.38	
4,818.0	4.37	250.55	4,518.6	-1,030.4	-676.9	-1,309.5	1,474.0	3.57	1,601,626.09	2,288,910.03	
4,903.0	2.02	254.72	4,603.5	-945.5	-678.4	-1,314.0	1,478.7	2.78	1,601,624.74	2,288,905.49	
4,988.0	1.58	261.22	4,688.4	-860.6	-678.9	-1,316.6	1,481.2	0.57	1,601,624.24	2,288,902.87	
5,074.0	1.34	251.74	4,774.4	-774.6	-679.4	-1,318.7	1,483.4	0.40	1,601,623.80	2,288,900.73	
5,159.0	1.01	253.62	4,859.4	-689.6	-680.0	-1,320.4	1,485.1	0.39	1,601,623.33	2,288,899.05	
5,244.0	0.47	213.79	4,944.4	-604.6	-680.5	-1,321.3	1,486.1	0.84	1,601,622.85	2,288,898.13	
5,330.0	0.88	250.50	5,030.4	-518.6	-681.0	-1,322.1	1,487.1	0.67	1,601,622.36	2,288,897.29	
5,415.0	0.57	266.58	5,115.4	-433.6	-681.2	-1,323.2	1,488.1	0.43	1,601,622.15	2,288,896.25	
5,500.0	0.35	248.13	5,200.4	-348.6	-681.3	-1,323.8	1,488.7	0.31	1,601,622.04	2,288,895.59	
5,586.0	0.38	200.39	5,286.4	-262.6	-681.7	-1,324.2	1,489.2	0.34	1,601,621.69	2,288,895.23	
5,671.0	0.25	145.93	5,371.4	-177.6	-682.1	-1,324.2	1,489.4	0.37	1,601,621.27	2,288,895.23	
5,757.0	0.34	125.92	5,457.4	-91.6	-682.4	-1,323.9	1,489.3	0.16	1,601,620.96	2,288,895.53	
5,842.0	0.74	167.52	5,542.4	-6.6	-683.1	-1,323.5	1,489.3	0.63	1,601,620.26	2,288,895.83	
5,927.0	1.01	203.08	5,627.3	78.3	-684.3	-1,323.7	1,490.0	0.70	1,601,619.04	2,288,895.62	
6,012.0	0.83	196.40	5,712.3	163.3	-685.6	-1,324.2	1,491.1	0.25	1,601,617.78	2,288,895.12	
6,097.0	1.10	154.83	5,797.3	248.3	-686.9	-1,324.0	1,491.5	0.86	1,601,616.44	2,288,895.26	
6,182.0	1.49	157.91	5,882.3	333.3	-688.7	-1,323.2	1,491.7	0.47	1,601,614.66	2,288,895.97	
6,268.0	1.19	184.76	5,968.3	419.3	-690.6	-1,322.9	1,492.3	0.80	1,601,612.73	2,288,896.26	
6,353.0	0.92	181.59	6,053.3	504.3	-692.2	-1,323.0	1,493.1	0.32	1,601,611.17	2,288,896.13	

Company: Ursa Operating Company, LLC	Local Co-ordinate Reference: Well Tompkins 31B-08-07-95
Project: Rockies Region	TVD Reference: Tompkins 31B-08-07-95 @ 5549.0usft (Capstar 321)
Site: Tompkins	MD Reference: Tompkins 31B-08-07-95 @ 5549.0usft (Capstar 321)
Well: Tompkins 31B-08-07-95	North Reference: True
Wellbore: Wellbore #1	Survey Calculation Method: Minimum Curvature
Design: Actual	Database: MasterDB

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)	
6,439.0	0.44	182.38	6,139.3	590.3	-693.2	-1,323.0	1,493.6	0.56	1,601,610.15	2,288,896.07	
6,524.0	0.53	175.97	6,224.3	675.3	-693.9	-1,323.0	1,493.9	0.12	1,601,609.43	2,288,896.06	
6,609.0	0.13	233.49	6,309.3	760.3	-694.4	-1,323.1	1,494.2	0.56	1,601,608.98	2,288,896.00	
6,695.0	0.66	77.30	6,395.3	846.3	-694.3	-1,322.6	1,493.8	0.91	1,601,609.02	2,288,896.41	
6,780.0	0.33	165.94	6,480.3	931.3	-694.5	-1,322.1	1,493.4	0.86	1,601,608.88	2,288,896.94	
6,865.0	0.97	198.91	6,565.2	1,016.2	-695.4	-1,322.3	1,494.0	0.84	1,601,607.97	2,288,896.74	
6,951.0	1.27	215.12	6,651.2	1,102.2	-696.8	-1,323.1	1,495.4	0.50	1,601,606.52	2,288,895.92	
7,036.0	1.10	221.36	6,736.2	1,187.2	-698.2	-1,324.1	1,497.0	0.25	1,601,605.17	2,288,894.80	
7,079.0	1.58	218.20	6,779.2	1,230.2	-699.0	-1,324.8	1,497.9	1.13	1,601,604.41	2,288,894.14	
Last PZD Survey											
7,145.0	1.58	218.20	6,845.2	1,296.2	-700.4	-1,325.9	1,499.5	0.00	1,601,603.01	2,288,892.97	
Straight Line Projection to TD											

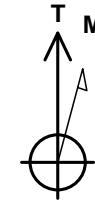
Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,738.0	1,687.8	-136.4	-258.4	Last PZD Survey

Checked By: _____ Approved By: _____ Date: _____



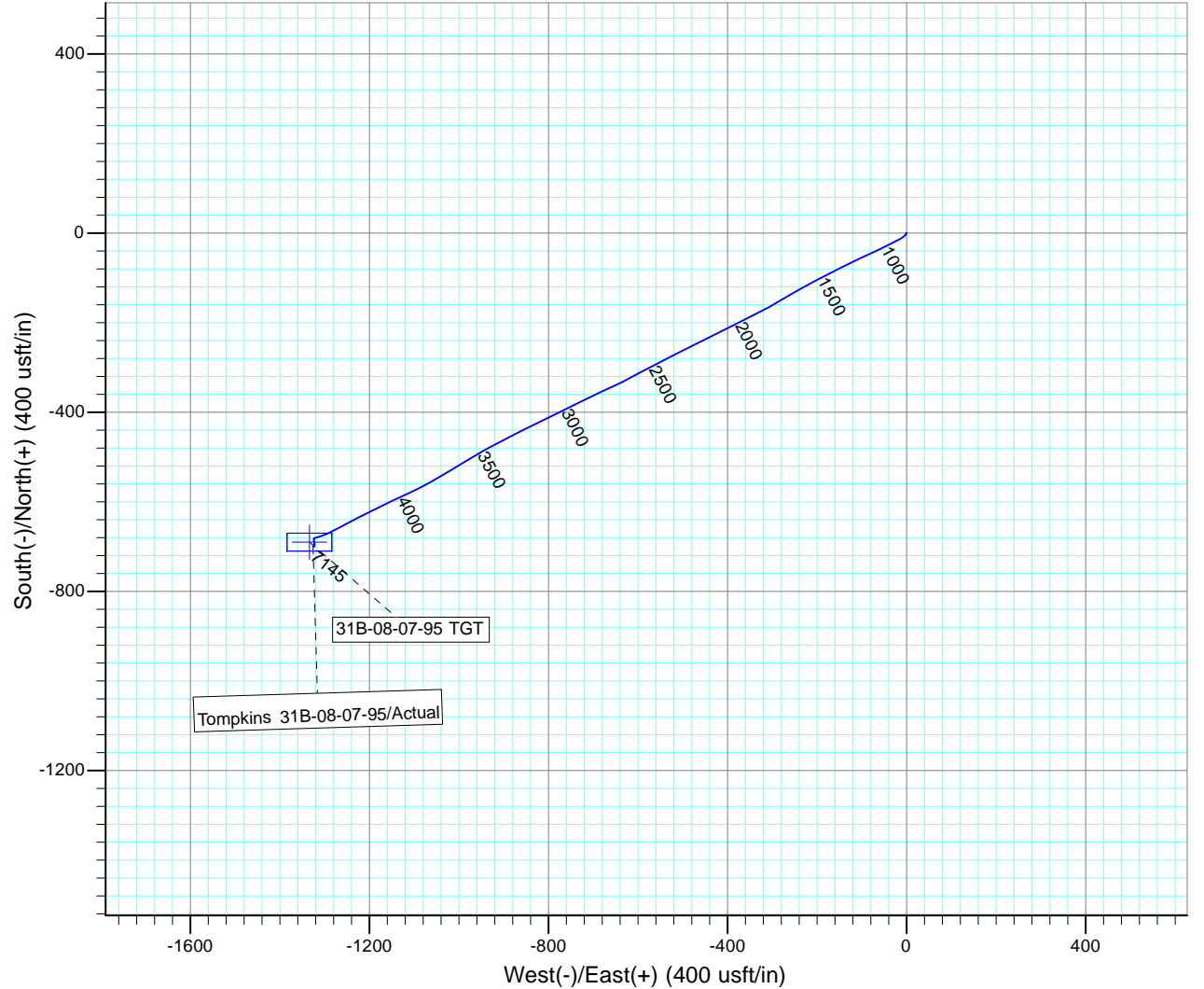
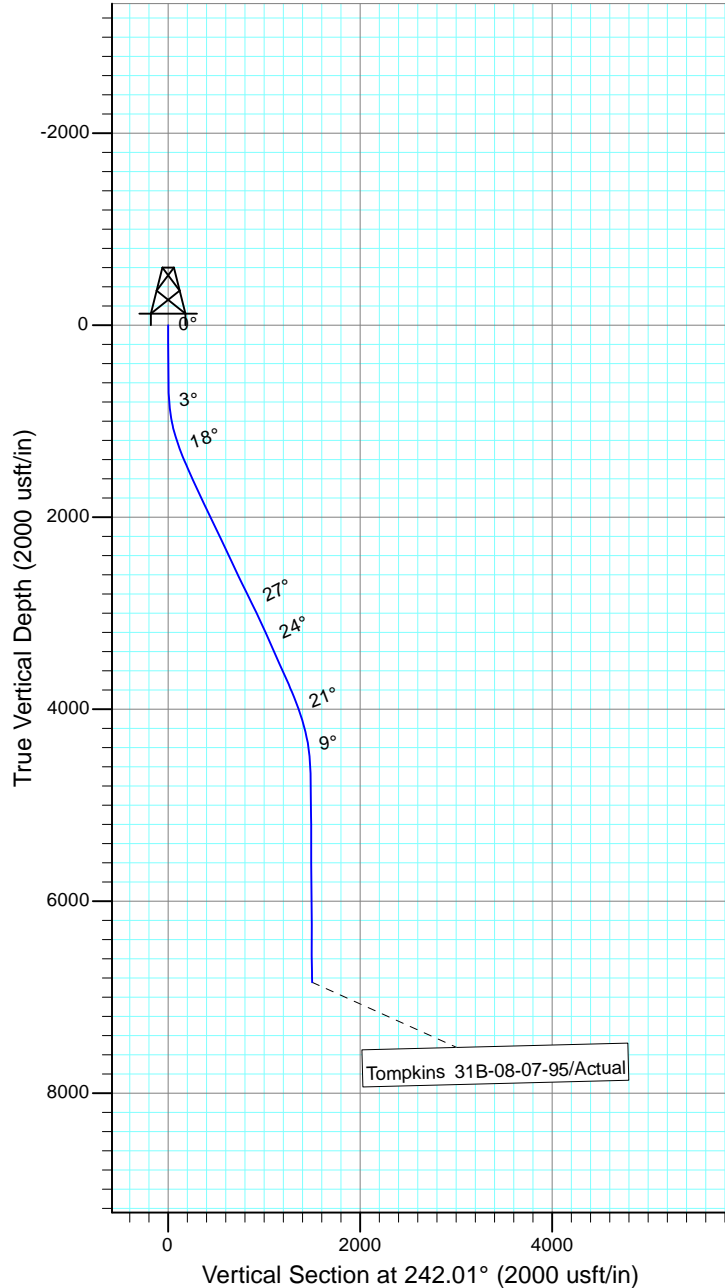
Project: Rockies Region
 Site: Tompkins
 Well: Tompkins 31B-08-07-95
 Wellbore: Wellbore #1
 SURVEY: Actual

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



Tompkins 31B-08-07-95/Actual

31B-08-07-95 TGT



Design: Actual (Tompkins 31B-08-07-95/Wellbore #1)

Created By: Sarah Webb-Hudson Date: 21:32, August 04 2016
 THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS SUPPORTED BY ACTUAL FIELD DATA.