



# **Ursa Operating Company, LLC**

**Rockies Region**

**Tompkins**

**Tompkins 32B-08-07-95**

**Wellbore #1**

**Design: Actual**

## **End Of Well Report**

**31 August, 2016**



<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Tompkins 32B-08-07-95
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	Tompkins 32B-08-07-95 @ 5549.0usft (Capstar 321)
<b>Site:</b>	Tompkins	<b>MD Reference:</b>	Tompkins 32B-08-07-95 @ 5549.0usft (Capstar 321)
<b>Well:</b>	Tompkins 32B-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 32B-08-07-95, SHL LAT: 39.459963500 LONG: -108.013960600				
Well Position	+N/-S	0.0 usft	Northing:	1,602,241.42 usft	Latitude:	39° 27' 35.868 N
	+E/-W	0.0 usft	Easting:	2,290,286.49 usft	Longitude:	108° 0' 50.258 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	215.30

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Survey Program		Date 8/31/2016		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
106.0	1,810.0	Surface (Wellbore #1)	MWD	MWD - Standard
1,915.0	7,590.0	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	0.94	167.32	106.0	0.6	-0.8	0.2	0.89	0.89	0.00	
136.0	1.19	182.95	136.0	1.0	-1.4	0.2	1.27	0.83	52.10	
167.0	1.41	180.45	167.0	1.6	-2.1	0.2	0.73	0.71	-8.06	
197.0	1.38	184.25	197.0	2.2	-2.8	0.2	0.32	-0.10	12.67	
227.0	0.92	198.38	227.0	2.7	-3.4	0.1	1.79	-1.53	47.10	
257.0	0.57	207.21	257.0	3.1	-3.8	-0.1	1.22	-1.17	29.43	
288.0	0.53	221.98	288.0	3.4	-4.0	-0.2	0.47	-0.13	47.65	
318.0	0.53	239.69	318.0	3.7	-4.2	-0.4	0.54	0.00	59.03	
349.0	0.67	228.14	349.0	4.0	-4.4	-0.7	0.59	0.45	-37.26	
380.0	0.70	235.69	380.0	4.3	-4.6	-1.0	0.31	0.10	24.35	
410.0	0.70	235.91	410.0	4.7	-4.8	-1.3	0.01	0.00	0.73	
441.0	0.77	249.50	441.0	5.0	-5.0	-1.7	0.60	0.23	43.84	
471.0	0.88	238.15	471.0	5.4	-5.2	-2.0	0.65	0.37	-37.83	
502.0	1.57	230.99	501.9	6.0	-5.6	-2.6	2.28	2.23	-23.10	
533.0	2.29	223.69	532.9	7.1	-6.3	-3.3	2.45	2.32	-23.55	
563.0	3.37	223.45	562.9	8.5	-7.4	-4.3	3.60	3.60	-0.80	
593.0	4.22	221.27	592.8	10.5	-8.8	-5.7	2.87	2.83	-7.27	
624.0	5.59	215.12	623.7	13.1	-10.9	-7.3	4.73	4.42	-19.84	
654.0	6.28	216.35	653.5	16.3	-13.5	-9.1	2.34	2.30	4.10	
684.0	7.29	213.14	683.3	19.8	-16.4	-11.1	3.59	3.37	-10.70	

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<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)	
715.0	8.00	210.33	714.1	23.9	-19.9	-13.3	2.59	2.29	-9.06	
745.0	8.88	212.88	743.7	28.3	-23.6	-15.6	3.19	2.93	8.50	
776.0	9.80	213.72	774.3	33.3	-27.8	-18.4	3.00	2.97	2.71	
806.0	10.99	216.31	803.8	38.7	-32.3	-21.5	4.26	3.97	8.63	
837.0	12.11	215.40	834.2	44.9	-37.3	-25.1	3.66	3.61	-2.94	
879.0	13.35	214.73	875.2	54.2	-44.9	-30.4	2.97	2.95	-1.60	
922.0	14.59	214.73	916.9	64.6	-53.4	-36.3	2.88	2.88	0.00	
964.0	16.00	213.01	957.4	75.7	-62.6	-42.5	3.53	3.36	-4.10	
1,007.0	17.31	214.24	998.6	88.0	-72.9	-49.3	3.15	3.05	2.86	
1,050.0	18.98	214.33	1,039.5	101.4	-83.9	-56.9	3.88	3.88	0.21	
1,093.0	20.83	214.60	1,079.9	116.0	-96.0	-65.2	4.31	4.30	0.63	
1,135.0	22.24	212.71	1,119.0	131.4	-108.8	-73.7	3.74	3.36	-4.50	
1,178.0	23.82	211.69	1,158.5	148.2	-123.1	-82.7	3.79	3.67	-2.37	
1,220.0	25.52	212.32	1,196.7	165.7	-137.9	-92.0	4.10	4.05	1.50	
1,264.0	26.88	213.76	1,236.2	185.1	-154.2	-102.5	3.41	3.09	3.27	
1,306.0	28.20	214.35	1,273.4	204.5	-170.3	-113.4	3.21	3.14	1.40	
1,349.0	29.89	214.11	1,311.0	225.4	-187.6	-125.2	3.94	3.93	-0.56	
1,392.0	31.51	215.52	1,348.0	247.4	-205.6	-137.7	4.12	3.77	3.28	
1,434.0	32.87	215.47	1,383.5	269.7	-223.8	-150.7	3.24	3.24	-0.12	
1,477.0	34.60	214.94	1,419.3	293.6	-243.3	-164.5	4.08	4.02	-1.23	
1,520.0	36.52	216.00	1,454.3	318.6	-263.7	-179.0	4.69	4.47	2.47	
1,562.0	38.32	217.32	1,487.6	344.1	-284.1	-194.2	4.69	4.29	3.14	
1,605.0	38.76	217.19	1,521.3	370.9	-305.5	-210.4	1.04	1.02	-0.30	
1,648.0	39.24	218.11	1,554.7	397.9	-326.9	-227.0	1.75	1.12	2.14	
1,690.0	39.86	217.01	1,587.1	424.7	-348.1	-243.3	2.23	1.48	-2.62	
1,734.0	40.17	216.62	1,620.8	452.9	-370.7	-260.2	0.91	0.70	-0.89	
1,776.0	41.00	216.27	1,652.6	480.3	-392.7	-276.4	2.05	1.98	-0.83	

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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	41.62	216.57	1,678.2	502.7	-410.8	-289.8	1.91	1.82	0.88	
Last PZD Surface Survey										
1,915.0	41.10	217.08	1,757.0	572.1	-466.3	-331.4	0.59	-0.50	0.49	
2,000.0	40.25	217.28	1,821.5	627.4	-510.5	-364.8	1.01	-1.00	0.24	
2,086.0	39.16	217.36	1,887.6	682.3	-554.1	-398.1	1.27	-1.27	0.09	
2,171.0	39.55	215.43	1,953.4	736.2	-597.5	-430.1	1.51	0.46	-2.27	
2,256.0	39.73	215.25	2,018.8	790.4	-641.8	-461.5	0.25	0.21	-0.21	
2,342.0	40.69	213.98	2,084.5	846.0	-687.5	-493.0	1.47	1.12	-1.48	
2,428.0	39.33	213.76	2,150.4	901.2	-733.4	-523.8	1.59	-1.58	-0.26	
2,513.0	39.33	212.35	2,216.1	955.1	-778.5	-553.2	1.05	0.00	-1.66	
2,598.0	38.32	213.50	2,282.3	1,008.3	-823.2	-582.2	1.46	-1.19	1.35	
2,684.0	38.85	213.01	2,349.5	1,061.9	-868.1	-611.6	0.71	0.62	-0.57	
2,769.0	38.54	214.20	2,415.9	1,115.0	-912.4	-641.0	0.95	-0.36	1.40	
2,854.0	39.16	213.58	2,482.1	1,168.3	-956.6	-670.7	0.86	0.73	-0.73	
2,940.0	39.38	213.76	2,548.7	1,222.7	-1,001.9	-700.9	0.29	0.26	0.21	
3,025.0	39.68	214.07	2,614.2	1,276.8	-1,046.8	-731.1	0.42	0.35	0.36	
3,111.0	40.12	214.95	2,680.2	1,332.0	-1,092.3	-762.3	0.83	0.51	1.02	
3,196.0	38.72	214.20	2,745.9	1,385.9	-1,136.7	-793.0	1.74	-1.65	-0.88	
3,281.0	38.85	213.01	2,812.1	1,439.2	-1,181.1	-822.4	0.89	0.15	-1.40	
3,367.0	39.29	212.27	2,878.9	1,493.3	-1,226.7	-851.7	0.75	0.51	-0.86	
3,452.0	39.24	212.44	2,944.7	1,547.0	-1,272.1	-880.5	0.14	-0.06	0.20	
3,537.0	39.77	212.57	3,010.3	1,601.0	-1,317.7	-909.5	0.63	0.62	0.15	
3,623.0	38.76	211.91	3,076.9	1,655.4	-1,363.8	-938.6	1.27	-1.17	-0.77	
3,708.0	38.89	210.73	3,143.1	1,708.5	-1,409.3	-966.3	0.88	0.15	-1.39	
3,793.0	39.60	211.65	3,208.9	1,762.2	-1,455.3	-994.1	1.08	0.84	1.08	
3,879.0	39.75	212.50	3,275.1	1,817.0	-1,501.8	-1,023.3	0.65	0.17	0.99	
3,964.0	38.39	211.70	3,341.1	1,870.5	-1,547.2	-1,051.7	1.71	-1.60	-0.94	

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4,050.0	37.09	211.34	3,409.1	1,923.0	-1,592.1	-1,079.3	1.53	-1.51	-0.42	
4,135.0	35.73	211.30	3,477.5	1,973.3	-1,635.2	-1,105.5	1.60	-1.60	-0.05	
4,220.0	34.10	213.54	3,547.2	2,021.9	-1,676.2	-1,131.5	2.44	-1.92	2.64	
4,306.0	32.56	216.00	3,619.1	2,069.2	-1,715.1	-1,158.5	2.38	-1.79	2.86	
4,391.0	30.76	215.17	3,691.4	2,113.8	-1,751.3	-1,184.4	2.18	-2.12	-0.98	
4,476.0	29.22	214.11	3,765.0	2,156.2	-1,786.3	-1,208.6	1.92	-1.81	-1.25	
4,562.0	27.95	212.93	3,840.6	2,197.4	-1,820.6	-1,231.3	1.62	-1.48	-1.37	
4,647.0	25.18	216.27	3,916.6	2,235.4	-1,851.9	-1,252.9	3.70	-3.26	3.93	
4,733.0	21.45	216.27	3,995.5	2,269.4	-1,879.3	-1,273.0	4.34	-4.34	0.00	
4,818.0	18.90	216.09	4,075.3	2,298.7	-1,903.0	-1,290.3	3.00	-3.00	-0.21	
4,904.0	16.17	217.54	4,157.3	2,324.6	-1,923.7	-1,305.8	3.21	-3.17	1.69	
4,989.0	13.10	220.53	4,239.5	2,346.0	-1,940.4	-1,319.3	3.72	-3.61	3.52	
5,075.0	10.17	220.50	4,323.8	2,363.3	-1,953.6	-1,330.5	3.41	-3.41	-0.03	
5,160.0	7.12	214.86	4,407.8	2,376.0	-1,963.7	-1,338.4	3.72	-3.59	-6.64	
5,246.0	4.53	216.27	4,493.3	2,384.8	-1,970.8	-1,343.5	3.02	-3.01	1.64	
5,331.0	2.29	209.06	4,578.2	2,389.8	-1,975.0	-1,346.3	2.68	-2.64	-8.48	
5,416.0	1.97	205.63	4,663.1	2,392.9	-1,977.8	-1,347.8	0.41	-0.38	-4.04	
5,502.0	1.93	196.33	4,749.1	2,395.8	-1,980.5	-1,348.8	0.37	-0.05	-10.81	
5,587.0	1.77	196.40	4,834.0	2,398.4	-1,983.1	-1,349.6	0.19	-0.19	0.08	
5,672.0	0.50	222.50	4,919.0	2,400.0	-1,984.7	-1,350.2	1.58	-1.49	30.71	
5,757.0	0.17	290.14	5,004.0	2,400.4	-1,984.9	-1,350.6	0.54	-0.39	79.58	
5,843.0	0.18	311.10	5,090.0	2,400.4	-1,984.8	-1,350.8	0.07	0.01	24.37	
5,928.0	0.26	217.94	5,175.0	2,400.6	-1,984.8	-1,351.0	0.38	0.09	-109.60	
6,014.0	0.26	192.75	5,261.0	2,400.9	-1,985.2	-1,351.2	0.13	0.00	-29.29	
6,099.0	0.41	214.34	5,346.0	2,401.4	-1,985.6	-1,351.4	0.23	0.18	25.40	
6,184.0	0.75	353.68	5,431.0	2,401.3	-1,985.3	-1,351.6	1.29	0.40	163.93	
6,270.0	1.01	357.02	5,517.0	2,400.3	-1,984.0	-1,351.7	0.31	0.30	3.88	

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6,355.0	0.92	344.67	5,602.0	2,399.3	-1,982.6	-1,351.9	0.27	-0.11	-14.53
6,440.0	0.40	322.09	5,687.0	2,398.8	-1,981.7	-1,352.3	0.67	-0.61	-26.56
6,526.0	0.40	317.25	5,773.0	2,398.6	-1,981.2	-1,352.7	0.04	0.00	-5.63
6,611.0	0.35	173.02	5,858.0	2,398.7	-1,981.3	-1,352.9	0.84	-0.06	-169.68
6,697.0	0.35	176.58	5,944.0	2,399.1	-1,981.8	-1,352.8	0.03	0.00	4.14
6,782.0	0.98	62.02	6,029.0	2,398.7	-1,981.7	-1,352.2	1.38	0.74	-134.78
6,867.0	0.70	54.19	6,114.0	2,397.6	-1,981.1	-1,351.1	0.36	-0.33	-9.21
6,953.0	0.51	302.19	6,200.0	2,397.1	-1,980.6	-1,351.0	1.17	-0.22	-130.23
7,038.0	0.68	277.98	6,285.0	2,397.3	-1,980.3	-1,351.8	0.35	0.20	-28.48
7,123.0	0.57	271.72	6,370.0	2,397.8	-1,980.2	-1,352.7	0.15	-0.13	-7.36
7,209.0	0.79	278.71	6,455.9	2,398.3	-1,980.1	-1,353.7	0.27	0.26	8.13
7,294.0	1.23	284.20	6,540.9	2,398.9	-1,979.8	-1,355.2	0.53	0.52	6.46
7,380.0	2.07	263.24	6,626.9	2,400.3	-1,979.7	-1,357.6	1.19	0.98	-24.37
7,465.0	2.50	247.16	6,711.8	2,402.9	-1,980.6	-1,360.9	0.90	0.51	-18.92
7,535.0	2.67	238.94	6,781.8	2,405.7	-1,982.1	-1,363.7	0.58	0.24	-11.74
Last PZD Survey									
7,590.0	2.67	238.94	6,836.7	2,408.0	-1,983.4	-1,365.9	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)	
7,535.0	6,781.8	-1,982.1	-1,363.7	Last PZD Survey
7,590.0	6,836.7	-1,983.4	-1,365.9	Straight Line Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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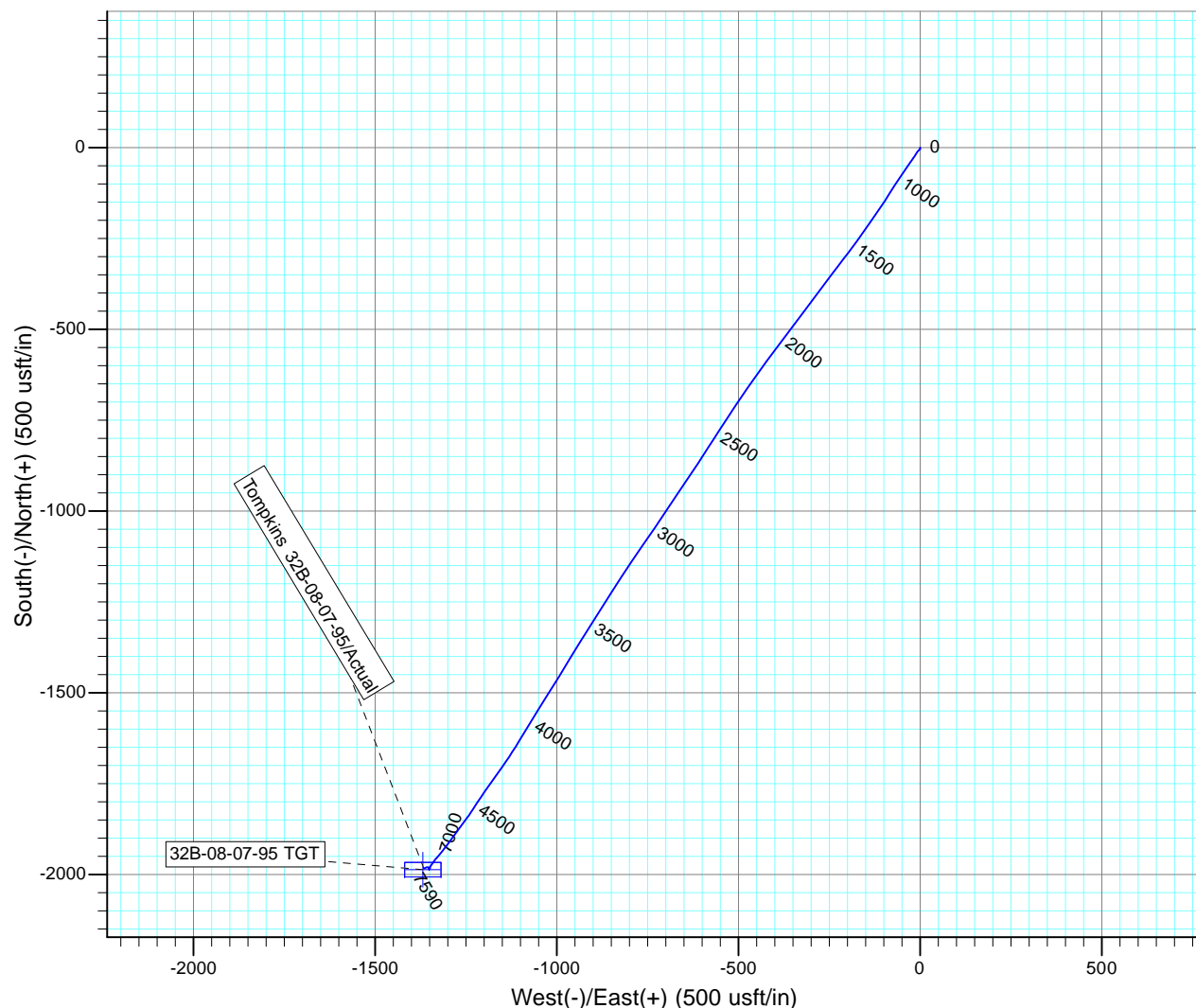
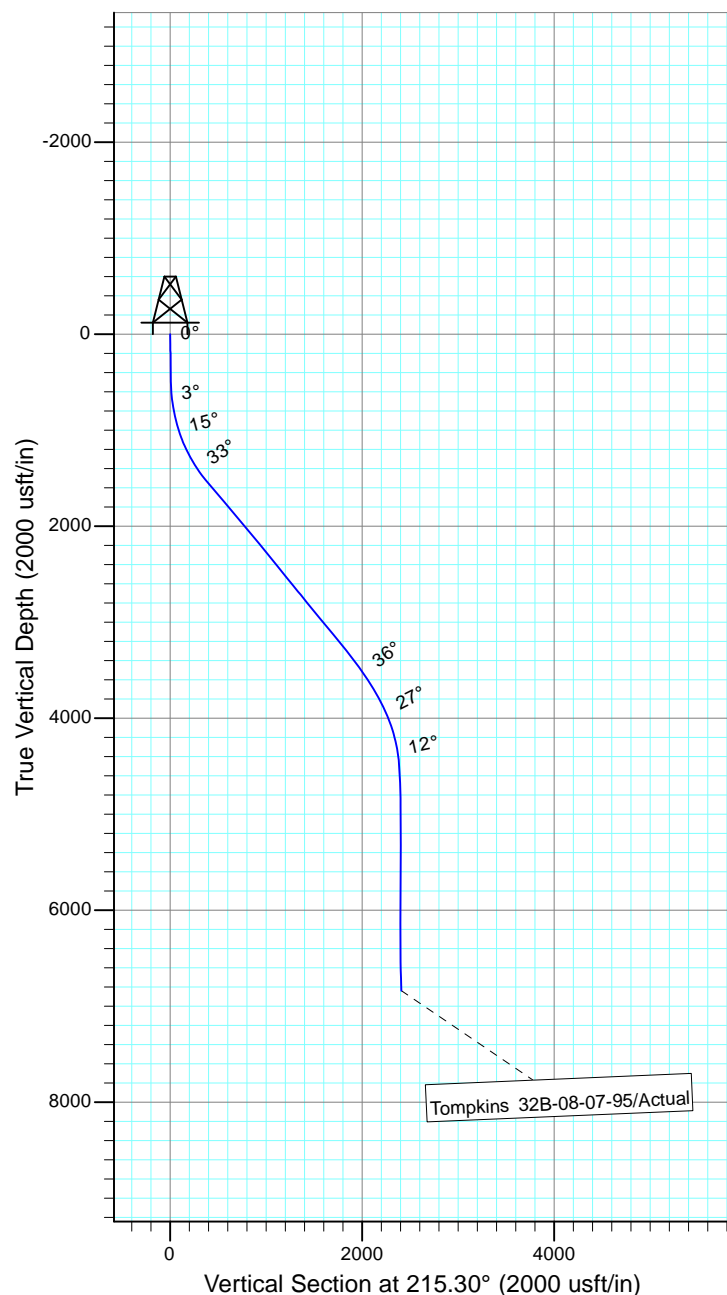
Project: Rockies Region  
 Site: Tompkins  
 Well: Tompkins 32B-08-07-95  
 Wellbore: Wellbore #1  
 SURVEY: Actual

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

Created By: Sarah Webb-Hudson Date: 18:59, August 31 2016  
 THIS SURVEY IS CORRECT TO THE BEST OF MY KNOWLEDGE AND IS  
 SUPPORTED BY ACTUAL FIELD DATA.