



## **Ursa Operating Company, LLC**

**Rockies Region**

**Speakman A**

**BAT 33B-24-07-96**

**Wellbore #1**

**Design: Actual**

## **End of Well Report**

**09 January, 2014**



<b>Company:</b>	Ursa Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well BAT 33B-24-07-96
<b>Project:</b>	Rockies Region	<b>TVD Reference:</b>	BAT 33B-24-07-96 @ 5197.9usft (Original Well Elev)
<b>Site:</b>	Speakman A	<b>MD Reference:</b>	BAT 33B-24-07-96 @ 5197.9usft (Original Well Elev)
<b>Well:</b>	BAT 33B-24-07-96	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	EDM 5000.1 Single User Db

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	Speakman A					
Site Position:		Northing:	1,588,429.06	usft	Latitude:	39° 25' 15.663 N
From:	Lat/Long	Easting:	2,276,734.73	usft	Longitude:	108° 3' 38.016 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16	"	Grid Convergence:	-1.61 °

Well		BAT 33B-24-07-96, SHL LAT: 39.420933287 LONG: -108.060351659				
Well Position	+N/-S	0.0 usft	Northing:	1,588,396.72 usft	Latitude:	39° 25' 15.360 N
	+E/-W	0.0 usft	Easting:	2,276,792.72 usft	Longitude:	108° 3' 37.266 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,197.9 usft	Ground Level:	5,182.5 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/13/2013	10.08	65.63	52,047

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	72.38

Survey Program		Date	1/9/2014		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
95.0	6,050.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

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<b>Well:</b>	BAT 33B-24-07-96	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	EDM 5000.1 Single User Db

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	
95.0	0.40	141.70	95.0	0.1	-0.3	0.2	0.42	0.42	0.00	
123.0	0.30	165.60	123.0	0.1	-0.4	0.3	0.62	-0.36	85.36	
151.0	0.20	68.70	151.0	0.2	-0.5	0.3	1.36	-0.36	-346.07	
176.0	0.40	75.70	176.0	0.3	-0.4	0.5	0.81	0.80	28.00	
204.0	0.80	68.00	204.0	0.6	-0.3	0.7	1.45	1.43	-27.50	
234.0	1.70	70.70	234.0	1.3	-0.1	1.4	3.01	3.00	9.00	
265.0	2.50	55.80	265.0	2.4	0.4	2.4	3.10	2.58	-48.06	
295.0	3.10	41.90	294.9	3.7	1.4	3.4	3.01	2.00	-46.33	
325.0	3.60	46.60	324.9	5.2	2.7	4.7	1.90	1.67	15.67	
355.0	3.80	48.70	354.8	7.0	4.0	6.1	0.81	0.67	7.00	
385.0	4.26	57.78	384.7	9.0	5.2	7.8	2.62	1.53	30.27	
415.0	5.53	64.87	414.6	11.5	6.4	10.0	4.68	4.23	23.63	
445.0	6.06	69.25	444.5	14.5	7.6	12.8	2.30	1.77	14.60	
475.0	6.86	67.50	474.3	17.9	8.8	16.0	2.75	2.67	-5.83	
505.0	7.51	70.70	504.1	21.6	10.2	19.5	2.54	2.17	10.67	
535.0	8.75	69.52	533.8	25.9	11.6	23.5	4.17	4.13	-3.93	
565.0	9.80	66.93	563.4	30.7	13.4	27.9	3.77	3.50	-8.63	
595.0	10.99	67.28	592.9	36.1	15.5	32.9	3.97	3.97	1.17	
625.0	12.00	65.10	622.3	42.0	17.9	38.4	3.66	3.37	-7.27	
655.0	13.45	66.40	651.5	48.6	20.6	44.4	4.93	4.83	4.33	
685.0	14.41	65.48	680.6	55.8	23.6	51.0	3.28	3.20	-3.07	
715.0	15.95	67.06	709.6	63.6	26.8	58.2	5.31	5.13	5.27	
745.0	16.77	66.64	738.4	72.0	30.1	66.0	2.76	2.73	-1.40	
775.0	17.93	68.24	767.0	80.9	33.5	74.2	4.18	3.87	5.33	
805.0	19.07	68.90	795.5	90.4	37.0	83.1	3.86	3.80	2.20	
835.0	19.91	69.39	823.7	100.4	40.5	92.5	2.85	2.80	1.63	

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<b>Site:</b>	Speakman A	<b>MD Reference:</b>	BAT 33B-24-07-96 @ 5197.9usft (Original Well Elev)
<b>Well:</b>	BAT 33B-24-07-96	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
865.0	21.09	68.95	851.8	110.9	44.3	102.3	3.97	3.93	-1.47	
895.0	22.10	69.78	879.7	121.9	48.2	112.6	3.52	3.37	2.77	
925.0	22.90	70.22	907.5	133.4	52.1	123.4	2.73	2.67	1.47	
955.0	23.99	72.07	935.0	145.3	55.9	134.7	4.38	3.63	6.17	
985.0	24.70	72.90	962.3	157.7	59.7	146.5	2.63	2.37	2.77	
1,015.0	27.03	77.03	989.3	170.7	63.0	159.1	9.81	7.77	13.77	
1,045.0	28.48	77.74	1,015.9	184.7	66.1	172.8	4.96	4.83	2.37	
1,075.0	28.70	77.10	1,042.2	199.0	69.2	186.8	1.26	0.73	-2.13	
1,105.0	28.30	75.60	1,068.6	213.2	72.6	200.7	2.73	-1.33	-5.00	
1,135.0	27.90	75.10	1,095.0	227.3	76.2	214.3	1.55	-1.33	-1.67	
1,165.0	28.10	73.70	1,121.5	241.4	80.0	227.9	2.29	0.67	-4.67	
1,195.0	27.60	73.90	1,148.0	255.4	83.9	241.4	1.70	-1.67	0.67	
1,225.0	27.50	72.10	1,174.6	269.3	87.9	254.6	2.79	-0.33	-6.00	
1,255.0	27.20	71.70	1,201.3	283.1	92.2	267.7	1.17	-1.00	-1.33	
1,285.0	27.20	72.30	1,228.0	296.8	96.4	280.8	0.91	0.00	2.00	
1,315.0	27.40	71.90	1,254.6	310.6	100.7	293.9	0.90	0.67	-1.33	
1,345.0	27.70	72.50	1,281.2	324.4	104.9	307.1	1.36	1.00	2.00	
1,375.0	27.50	71.40	1,307.8	338.3	109.2	320.3	1.82	-0.67	-3.67	
1,405.0	27.50	71.00	1,334.4	352.2	113.7	333.4	0.62	0.00	-1.33	
1,435.0	27.80	72.10	1,361.0	366.1	118.1	346.6	1.97	1.00	3.67	
1,465.0	28.00	72.40	1,387.5	380.1	122.4	360.0	0.81	0.67	1.00	
1,495.0	27.40	71.40	1,414.1	394.1	126.7	373.2	2.53	-2.00	-3.33	
1,525.0	27.90	72.10	1,440.6	408.0	131.1	386.5	1.99	1.67	2.33	
1,555.0	27.60	72.70	1,467.2	422.0	135.3	399.8	1.37	-1.00	2.00	
1,585.0	27.60	72.40	1,493.8	435.9	139.4	413.0	0.46	0.00	-1.00	
1,615.0	27.40	73.70	1,520.4	449.7	143.5	426.3	2.11	-0.67	4.33	
1,645.0	26.90	74.90	1,547.1	463.4	147.2	439.5	2.47	-1.67	4.00	

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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)	
1,675.0	26.80	74.90	1,573.9	476.9	150.7	452.5	0.33	-0.33	0.00	
1,705.0	26.60	74.50	1,600.7	490.4	154.3	465.6	0.90	-0.67	-1.33	
1,735.0	26.70	74.20	1,627.5	503.9	157.9	478.5	0.56	0.33	-1.00	
1,765.0	26.80	74.90	1,654.3	517.4	161.5	491.5	1.10	0.33	2.33	
1,867.0	27.40	74.70	1,745.1	563.8	173.7	536.4	0.59	0.59	-0.20	
1,994.0	29.40	72.60	1,856.8	624.2	190.7	594.3	1.76	1.57	-1.65	
2,080.0	28.90	71.60	1,931.9	666.0	203.6	634.2	0.81	-0.58	-1.16	
2,165.0	29.70	73.00	2,006.0	707.6	216.2	673.8	1.24	0.94	1.65	
2,250.0	29.00	71.80	2,080.1	749.3	228.8	713.5	1.08	-0.82	-1.41	
2,335.0	28.40	72.40	2,154.7	790.1	241.4	752.3	0.78	-0.71	0.71	
2,421.0	28.50	73.80	2,230.3	831.1	253.3	791.5	0.78	0.12	1.63	
2,506.0	28.20	73.10	2,305.1	871.4	264.8	830.2	0.53	-0.35	-0.82	
2,591.0	28.90	73.30	2,379.7	912.1	276.5	869.1	0.83	0.82	0.24	
2,676.0	29.00	72.70	2,454.1	953.2	288.5	908.5	0.36	0.12	-0.71	
2,761.0	29.40	73.60	2,528.3	994.7	300.6	948.2	0.70	0.47	1.06	
2,847.0	30.10	73.00	2,603.0	1,037.3	312.8	989.0	0.88	0.81	-0.70	
2,932.0	29.00	72.60	2,676.9	1,079.2	325.2	1,029.1	1.31	-1.29	-0.47	
3,017.0	28.20	71.80	2,751.5	1,119.9	337.7	1,067.8	1.04	-0.94	-0.94	
3,102.0	25.50	72.70	2,827.4	1,158.3	349.4	1,104.4	3.21	-3.18	1.06	
3,145.0	24.50	72.70	2,866.3	1,176.5	354.8	1,121.7	2.33	-2.33	0.00	
3,188.0	23.50	73.00	2,905.6	1,194.0	359.9	1,138.4	2.34	-2.33	0.70	
3,230.0	22.30	73.00	2,944.3	1,210.3	364.7	1,154.1	2.86	-2.86	0.00	
3,273.0	20.80	74.70	2,984.3	1,226.1	369.1	1,169.2	3.78	-3.49	3.95	
3,315.0	19.40	76.20	3,023.8	1,240.5	372.7	1,183.2	3.55	-3.33	3.57	
3,358.0	18.30	76.20	3,064.4	1,254.4	376.1	1,196.7	2.56	-2.56	0.00	
3,401.0	16.80	75.90	3,105.4	1,267.3	379.2	1,209.3	3.49	-3.49	-0.70	
3,443.0	15.20	74.60	3,145.8	1,278.9	382.1	1,220.5	3.90	-3.81	-3.10	

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<b>Site:</b>	Speakman A	<b>MD Reference:</b>	BAT 33B-24-07-96 @ 5197.9usft (Original Well Elev)
<b>Well:</b>	BAT 33B-24-07-96	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Actual	<b>Database:</b>	EDM 5000.1 Single User Db

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	
3,486.0	13.70	75.50	3,187.5	1,289.6	384.9	1,230.8	3.53	-3.49	2.09	
3,529.0	12.70	76.60	3,229.3	1,299.4	387.3	1,240.4	2.40	-2.33	2.56	
3,571.0	11.80	76.60	3,270.4	1,308.3	389.3	1,249.0	2.14	-2.14	0.00	
3,614.0	10.80	75.50	3,312.5	1,316.7	391.4	1,257.2	2.38	-2.33	-2.56	
3,657.0	9.80	75.70	3,354.8	1,324.4	393.3	1,264.7	2.33	-2.33	0.47	
3,699.0	8.40	74.90	3,396.3	1,331.0	395.0	1,271.1	3.35	-3.33	-1.90	
3,742.0	7.20	77.30	3,438.9	1,336.8	396.4	1,276.7	2.89	-2.79	5.58	
3,784.0	5.80	80.90	3,480.6	1,341.5	397.3	1,281.4	3.47	-3.33	8.57	
3,827.0	4.30	79.30	3,523.5	1,345.3	397.9	1,285.1	3.50	-3.49	-3.72	
3,870.0	3.90	63.70	3,566.4	1,348.3	398.9	1,288.0	2.75	-0.93	-36.28	
3,955.0	3.40	65.50	3,651.2	1,353.7	401.2	1,292.9	0.60	-0.59	2.12	
4,040.0	2.80	69.90	3,736.1	1,358.3	403.0	1,297.2	0.76	-0.71	5.18	
4,125.0	2.50	62.50	3,821.0	1,362.2	404.5	1,300.8	0.53	-0.35	-8.71	
4,210.0	1.70	57.70	3,905.9	1,365.2	406.1	1,303.5	0.96	-0.94	-5.65	
4,294.0	1.10	70.40	3,989.9	1,367.2	407.0	1,305.3	0.80	-0.71	15.12	
4,380.0	0.90	84.20	4,075.9	1,368.7	407.3	1,306.7	0.36	-0.23	16.05	
4,465.0	0.50	128.40	4,160.9	1,369.6	407.2	1,307.7	0.76	-0.47	52.00	
4,550.0	0.60	139.80	4,245.9	1,370.0	406.6	1,308.3	0.17	0.12	13.41	
4,635.0	1.20	43.40	4,330.9	1,370.9	406.9	1,309.2	1.65	0.71	-113.41	
4,720.0	0.80	36.30	4,415.8	1,372.2	408.0	1,310.1	0.49	-0.47	-8.35	
4,805.0	0.20	22.60	4,500.8	1,372.7	408.7	1,310.5	0.71	-0.71	-16.12	
4,891.0	0.60	248.50	4,586.8	1,372.4	408.6	1,310.2	0.88	0.47	-155.93	
4,976.0	1.10	232.40	4,671.8	1,371.2	408.0	1,309.1	0.65	0.59	-18.94	
5,061.0	1.20	229.60	4,756.8	1,369.6	406.9	1,307.8	0.13	0.12	-3.29	
5,146.0	1.60	312.10	4,841.8	1,368.2	407.1	1,306.2	2.20	0.47	97.06	
5,232.0	1.70	297.30	4,927.8	1,366.7	408.5	1,304.2	0.51	0.12	-17.21	
5,317.0	2.10	284.60	5,012.7	1,364.5	409.5	1,301.6	0.68	0.47	-14.94	

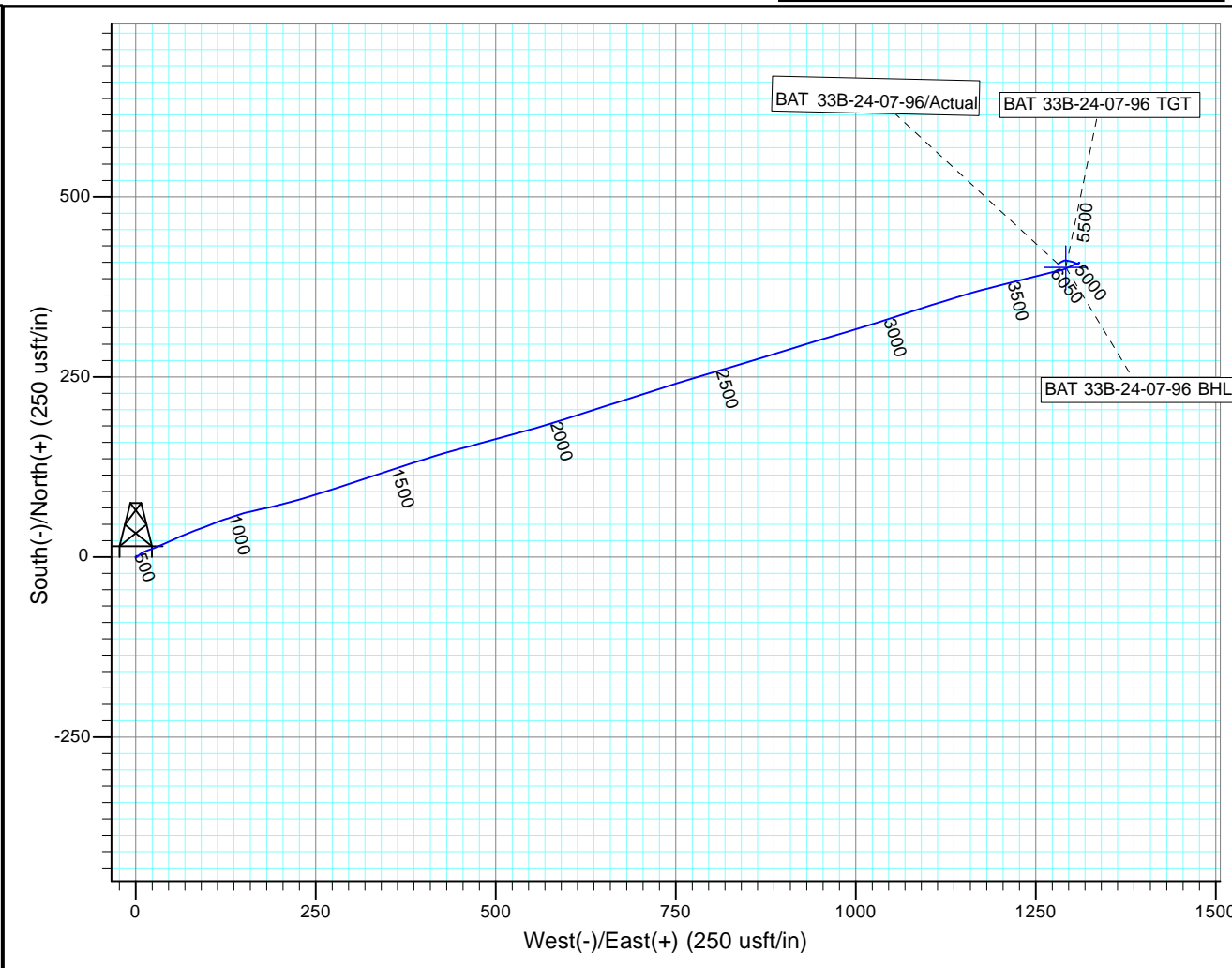
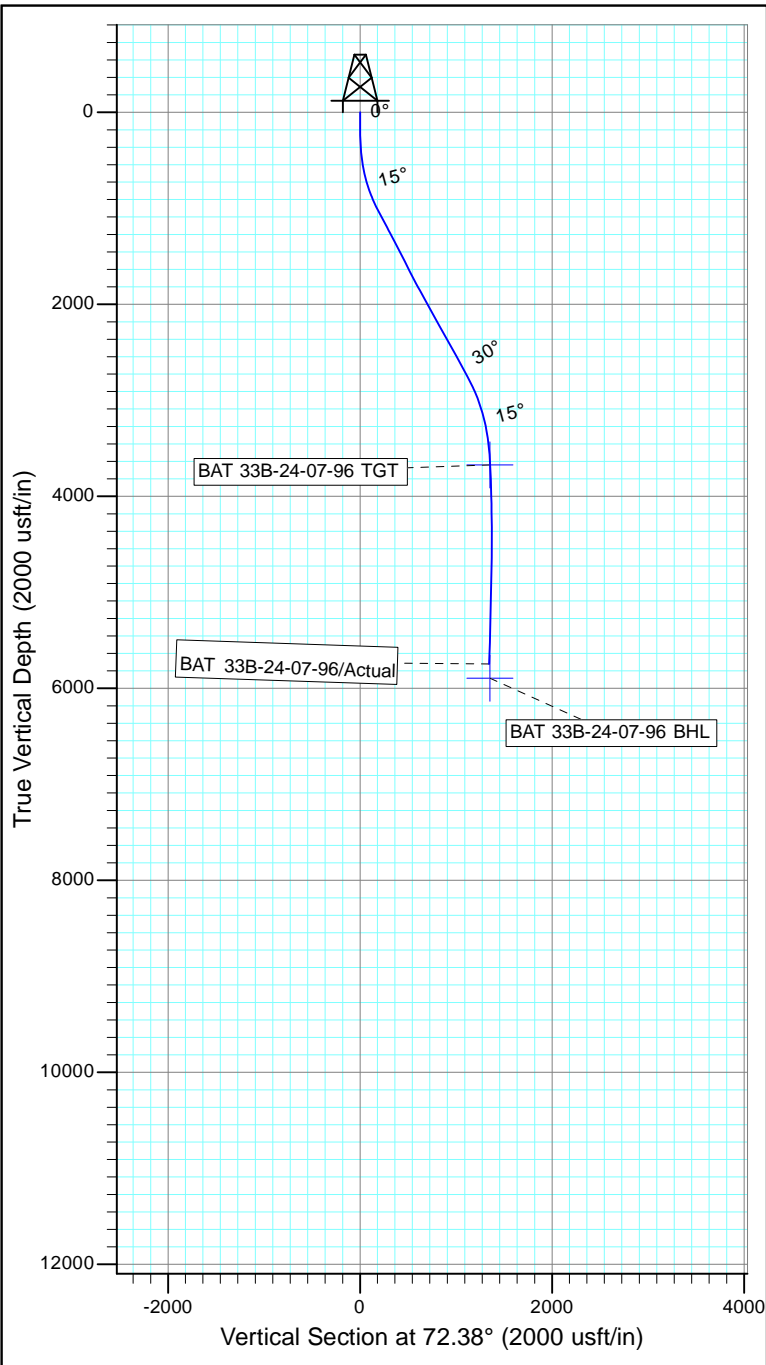
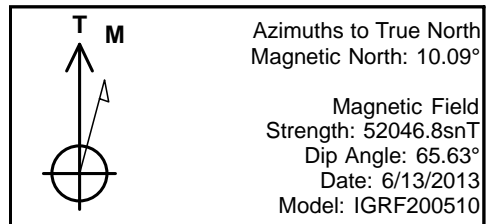
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5,402.0	2.10	290.20	5,097.7	1,361.9	410.4	1,298.6	0.24	0.00	6.59	
5,487.0	2.40	273.40	5,182.6	1,359.0	411.0	1,295.4	0.85	0.35	-19.76	
5,573.0	0.90	296.90	5,268.6	1,356.9	411.5	1,293.0	1.88	-1.74	27.33	
5,658.0	1.10	273.50	5,353.5	1,355.6	411.8	1,291.6	0.53	0.24	-27.53	
5,743.0	0.90	255.40	5,438.5	1,354.2	411.7	1,290.1	0.44	-0.24	-21.29	
5,829.0	2.10	246.00	5,524.5	1,351.9	410.9	1,288.0	1.42	1.40	-10.93	
5,914.0	2.10	245.20	5,609.4	1,348.9	409.6	1,285.2	0.03	0.00	-0.94	
5,998.0	2.10	231.30	5,693.4	1,345.9	408.0	1,282.6	0.60	0.00	-16.55	
6,050.0	2.10	231.30	5,745.3	1,344.1	406.8	1,281.1	0.00	0.00	0.00	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



Project: Rockies Region  
 Site: Speakman A  
 Well: BAT 33B-24-07-96  
 Wellbore: Wellbore #1  
 Design: Actual



Design: Actual (BAT 33B-24-07-96/Wellbore #1)

Created By: *Matthew Linton* Date: 9:41, January 09 201

THIS SURVEY IS CORRECT TO THE BEST OF  
 MY KNOWLEDGE AND IS SUPPORTED  
 BY ACTUAL FIELD DATA