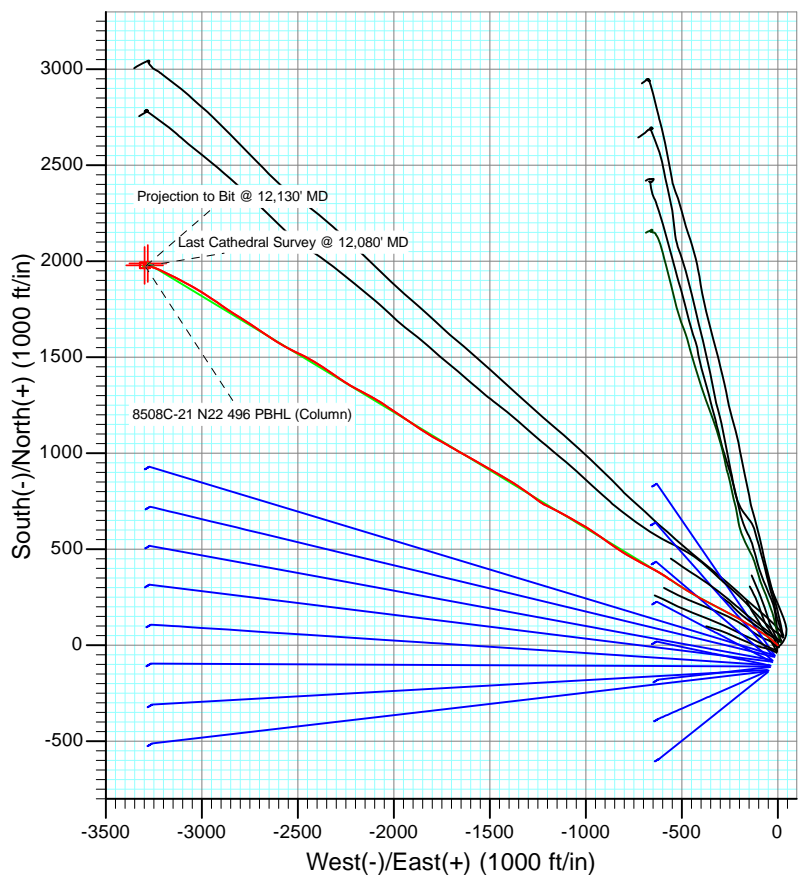
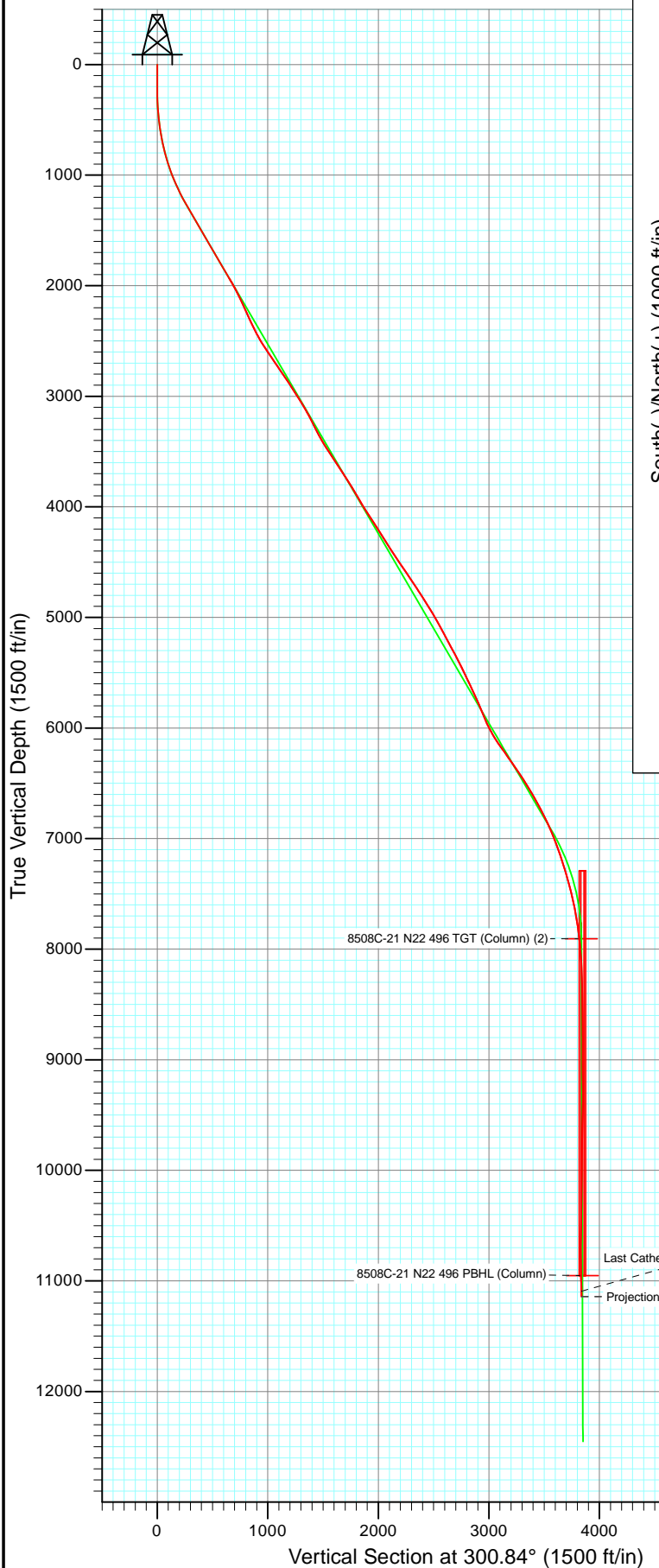




Project: Story Gulch  
 Site: S22-T4S-R96W (N22 496) (Column Pattern)  
 Well: 8508C-21 N22 496  
 Wellbore: DD  
 Design: FINAL



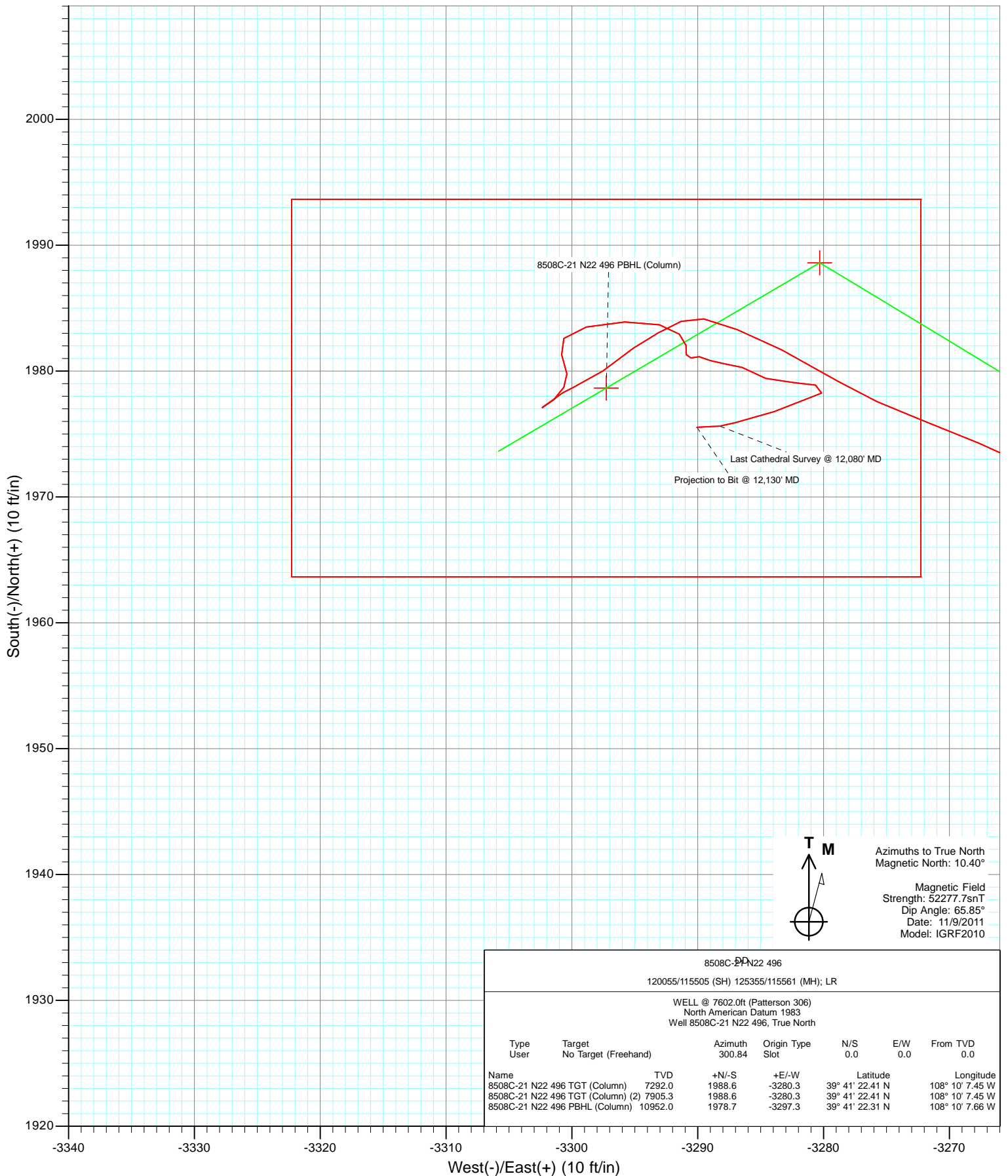
Azimuths to True North  
 Magnetic North: 10.40°

Magnetic Field  
 Strength: 52277.7snT  
 Dip Angle: 65.85°  
 Date: 11/9/2011  
 Model: IGRF2010

DD 8508C-21 N22 496 120055/115505 (SH) 125355/115561 (MH); LR						
WELL @ 7602.0ft (Patterson 306) North American Datum 1983 Well 8508C-21 N22 496, True North						
Type User	Target No Target (Freehand)	Azimuth 300.84	Origin Type Slot	N/S 0.0	E/W 0.0	From TVD 0.0
Name	TV	+N/-S	+E/-W	Latitude		Longitude
8508C-21 N22 496 TGT (Column) (2)	7905.3	1988.6	-3280.3	39° 41' 22.41 N		108° 10' 7.45 W
8508C-21 N22 496 PBHL (Column)	10952.0	1978.7	-3297.3	39° 41' 22.31 N		108° 10' 7.66 W



Project: Story Gulch  
Site: S22-T4S-R96W (N22 496) (Column Pattern)  
Well: 8508C-21 N22 496  
Wellbore: DD  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8508C-21 N22 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	WELL @ 7602.0ft (Patterson 306)
<b>Site:</b>	S22-T4S-R96W (N22 496) (Column Pattern)	<b>MD Reference:</b>	WELL @ 7602.0ft (Patterson 306)
<b>Well:</b>	8508C-21 N22 496	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	Story Gulch		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

Site		S22-T4S-R96W (N22 496) (Column Pattern)			
Site Position:		Northing:	1,685,048.56 ft	Latitude:	39° 41' 3.24 N
From:	Lat/Long	Easting:	2,252,316.79 ft	Longitude:	108° 9' 25.11 W
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.68 °

Well	8508C-21 N22 496					
Well Position	+N/-S	0.0 ft	Northing:	1,685,000.93 ft	Latitude:	39° 41' 2.76 N
	+E/-W	0.0 ft	Easting:	2,252,286.10 ft	Longitude:	108° 9' 25.48 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,569.0 ft

<b>Wellbore</b>	DD				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	11/9/2011	10.40	65.85	52,278

<b>Design</b>	DD				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	300.84	

<b>Survey Program</b>	<b>Date</b>	12/12/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
210.0	2,085.0	Survey #1 (DD)	MWD	Geolink MWD	
2,166.0	12,130.0	Survey #2 (DD)	MWD	Geolink MWD	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Formations / Comments</b>	
2,085.0	30.90	303.30	1,934.0	339.1	-555.9	651.1	0.00	0.00		
2,166.0	28.60	304.70	2,004.4	361.5	-589.2	691.2	2.97	-2.84		
2,258.0	26.70	299.20	2,085.9	384.2	-625.4	733.9	3.46	-2.07		
2,349.0	25.10	297.20	2,167.7	403.0	-660.4	773.6	2.00	-1.76		
2,441.0	23.70	297.30	2,251.5	420.4	-694.2	811.5	1.52	-1.52		
2,532.0	25.90	299.20	2,334.1	438.4	-727.8	849.6	2.57	2.42		
2,624.0	26.80	299.10	2,416.5	458.3	-763.4	890.5	0.98	0.98		
2,715.0	29.90	302.20	2,496.6	480.4	-800.6	933.6	3.77	3.41		
2,807.0	33.80	305.00	2,574.8	507.3	-841.0	982.1	4.53	4.24		
2,898.0	35.10	304.70	2,649.8	536.7	-883.2	1,033.5	1.44	1.43		
2,989.0	33.60	305.40	2,724.9	566.2	-925.2	1,084.7	1.70	-1.65		
3,081.0	34.80	304.40	2,801.0	595.8	-967.7	1,136.3	1.44	1.30		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8508C-21 N22 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	WELL @ 7602.0ft (Patterson 306)
<b>Site:</b>	S22-T4S-R96W (N22 496) (Column Pattern)	<b>MD Reference:</b>	WELL @ 7602.0ft (Patterson 306)
<b>Well:</b>	8508C-21 N22 496	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
3,173.0	33.50	299.80	2,877.2	623.2	-1,011.4	1,187.8	3.14	-1.41	
3,264.0	33.00	298.80	2,953.3	647.7	-1,054.9	1,237.7	0.82	-0.55	
3,356.0	31.00	300.50	3,031.3	671.8	-1,097.2	1,286.5	2.38	-2.17	
3,447.0	31.10	297.30	3,109.3	694.4	-1,138.3	1,333.4	1.82	0.11	
3,539.0	28.30	295.00	3,189.2	714.5	-1,179.2	1,378.8	3.29	-3.04	
3,629.0	25.30	298.80	3,269.5	732.8	-1,215.4	1,419.2	3.84	-3.33	
3,721.0	28.70	306.50	3,351.5	755.5	-1,250.4	1,460.9	5.29	3.70	
3,813.0	31.50	307.20	3,431.1	783.1	-1,287.3	1,506.8	3.07	3.04	
3,904.0	33.50	305.20	3,507.8	812.0	-1,326.8	1,555.4	2.49	2.20	
3,995.0	33.00	303.00	3,583.9	840.0	-1,368.1	1,605.2	1.43	-0.55	
4,087.0	34.00	301.10	3,660.6	866.9	-1,411.1	1,656.0	1.57	1.09	
4,178.0	33.30	298.50	3,736.4	892.0	-1,454.9	1,706.4	1.76	-0.77	
4,269.0	30.80	300.10	3,813.5	915.6	-1,497.0	1,754.7	2.90	-2.75	
4,361.0	30.10	300.30	3,892.8	939.0	-1,537.3	1,801.3	0.77	-0.76	
4,452.0	30.70	299.60	3,971.3	962.0	-1,577.2	1,847.3	0.77	0.66	
4,543.0	33.20	298.80	4,048.5	985.5	-1,619.2	1,895.5	2.79	2.75	
4,635.0	33.10	299.10	4,125.6	1,009.8	-1,663.2	1,945.7	0.21	-0.11	
4,726.0	33.40	301.00	4,201.7	1,034.8	-1,706.4	1,995.6	1.19	0.33	
4,818.0	31.80	297.90	4,279.2	1,059.2	-1,749.6	2,045.2	2.51	-1.74	
4,909.0	32.20	300.00	4,356.3	1,082.6	-1,791.7	2,093.4	1.30	0.44	
5,001.0	33.20	302.50	4,433.8	1,108.3	-1,834.2	2,143.0	1.83	1.09	
5,092.0	34.70	304.20	4,509.3	1,136.3	-1,876.7	2,193.8	1.95	1.65	
5,184.0	33.80	303.90	4,585.3	1,165.3	-1,919.6	2,245.5	1.00	-0.98	
5,275.0	33.80	305.10	4,660.9	1,194.0	-1,961.3	2,296.0	0.73	0.00	
5,367.0	34.10	303.00	4,737.2	1,222.7	-2,003.8	2,347.3	1.32	0.33	
5,459.0	32.20	304.80	4,814.3	1,250.8	-2,045.6	2,397.6	2.33	-2.07	
5,550.0	31.90	300.00	4,891.4	1,276.6	-2,086.3	2,445.8	2.82	-0.33	
5,641.0	31.50	299.20	4,968.8	1,300.2	-2,127.9	2,493.6	0.64	-0.44	
5,733.0	28.60	298.10	5,048.5	1,322.3	-2,168.3	2,539.6	3.21	-3.15	
5,824.0	27.70	297.70	5,128.7	1,342.4	-2,206.3	2,582.5	1.01	-0.99	
5,916.0	27.60	301.10	5,210.2	1,363.4	-2,243.5	2,625.2	1.72	-0.11	
6,008.0	29.40	306.10	5,291.0	1,387.7	-2,280.0	2,669.0	3.25	1.96	
6,099.0	27.90	303.20	5,370.9	1,412.5	-2,315.8	2,712.5	2.25	-1.65	
6,191.0	25.90	304.20	5,452.9	1,435.6	-2,350.5	2,754.1	2.23	-2.17	
6,282.0	24.50	303.50	5,535.3	1,457.2	-2,382.6	2,792.8	1.57	-1.54	
6,374.0	26.10	300.50	5,618.5	1,478.0	-2,416.0	2,832.0	2.23	1.74	
6,466.0	24.60	298.60	5,701.6	1,497.4	-2,450.2	2,871.4	1.85	-1.63	
6,557.0	23.30	294.80	5,784.8	1,514.1	-2,483.2	2,908.2	2.22	-1.43	
6,649.0	22.10	296.20	5,869.6	1,529.3	-2,515.2	2,943.6	1.43	-1.30	
6,740.0	24.60	298.50	5,953.2	1,545.9	-2,547.3	2,979.6	2.92	2.75	
6,832.0	28.80	298.90	6,035.4	1,565.8	-2,583.5	3,020.9	4.57	4.57	
6,924.0	32.80	303.80	6,114.4	1,590.4	-2,623.6	3,067.9	5.13	4.35	
7,015.0	36.60	303.30	6,189.2	1,619.0	-2,666.8	3,119.7	4.19	4.18	
7,107.0	34.50	304.50	6,264.0	1,648.8	-2,711.2	3,173.1	2.41	-2.28	
7,198.0	35.20	303.70	6,338.7	1,678.0	-2,754.3	3,225.0	0.92	0.77	
7,290.0	33.80	302.00	6,414.5	1,706.2	-2,798.0	3,277.1	1.85	-1.52	
7,381.0	33.10	301.50	6,490.5	1,732.6	-2,840.7	3,327.2	0.83	-0.77	
7,473.0	30.50	305.30	6,568.6	1,759.2	-2,881.2	3,375.6	3.57	-2.83	
7,565.0	28.70	303.90	6,648.6	1,785.1	-2,918.6	3,421.0	2.10	-1.96	
7,656.0	27.50	302.90	6,728.9	1,808.7	-2,954.3	3,463.8	1.42	-1.32	
7,748.0	27.00	304.30	6,810.7	1,832.0	-2,989.4	3,505.9	0.88	-0.54	
7,839.0	24.30	300.30	6,892.7	1,853.1	-3,022.7	3,545.2	3.52	-2.97	
7,931.0	21.40	297.90	6,977.5	1,870.5	-3,053.8	3,580.9	3.31	-3.15	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8508C-21 N22 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	WELL @ 7602.0ft (Patterson 306)
<b>Site:</b>	S22-T4S-R96W (N22 496) (Column Pattern)	<b>MD Reference:</b>	WELL @ 7602.0ft (Patterson 306)
<b>Well:</b>	8508C-21 N22 496	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
8,022.0	20.30	298.20	7,062.5	1,885.7	-3,082.4	3,613.3	1.21	-1.21	
8,114.0	18.60	297.50	7,149.3	1,900.0	-3,109.5	3,643.9	1.87	-1.85	
8,206.0	17.50	298.10	7,236.8	1,913.3	-3,134.7	3,672.3	1.21	-1.20	
8,297.0	16.30	298.70	7,323.8	1,925.9	-3,158.0	3,698.8	1.33	-1.32	
8,389.0	14.90	294.40	7,412.4	1,937.0	-3,180.1	3,723.4	1.97	-1.52	
8,480.0	14.20	295.20	7,500.5	1,946.6	-3,200.9	3,746.1	0.80	-0.77	
8,572.0	12.70	294.10	7,590.0	1,955.5	-3,220.3	3,767.4	1.65	-1.63	
8,663.0	10.20	288.90	7,679.2	1,962.2	-3,237.1	3,785.2	2.97	-2.75	
8,755.0	8.50	290.40	7,770.0	1,967.2	-3,251.1	3,799.9	1.87	-1.85	
8,846.0	7.30	295.30	7,860.1	1,972.0	-3,262.7	3,812.3	1.51	-1.32	
8,938.0	5.40	290.50	7,951.5	1,976.0	-3,272.0	3,822.3	2.14	-2.07	
9,030.0	4.00	300.70	8,043.2	1,979.2	-3,278.8	3,829.8	1.77	-1.52	
9,198.0	2.20	290.60	8,211.0	1,983.3	-3,286.9	3,838.8	1.12	-1.07	
9,289.0	1.30	282.70	8,301.9	1,984.1	-3,289.5	3,841.5	1.02	-0.99	
9,381.0	1.10	241.50	8,393.9	1,984.0	-3,291.3	3,843.0	0.94	-0.22	
9,472.0	1.50	244.70	8,484.9	1,983.0	-3,293.2	3,844.1	0.45	0.44	
9,563.0	1.40	231.30	8,575.8	1,981.8	-3,295.1	3,845.1	0.39	-0.11	
9,669.0	1.90	234.80	8,681.8	1,980.0	-3,297.5	3,846.3	0.48	0.47	
9,742.0	2.40	245.80	8,754.7	1,978.7	-3,299.9	3,847.7	0.89	0.68	
9,761.0	2.90	241.40	8,773.7	1,978.3	-3,300.7	3,848.2	2.84	2.63	
9,852.0	0.50	101.90	8,864.7	1,977.1	-3,302.4	3,849.0	3.62	-2.64	
9,943.0	1.10	36.60	8,955.7	1,977.7	-3,301.4	3,848.5	1.10	0.66	
10,035.0	0.50	44.80	9,047.7	1,978.7	-3,300.6	3,848.3	0.66	-0.65	
10,126.0	1.00	356.70	9,138.7	1,979.8	-3,300.4	3,848.7	0.84	0.55	
10,218.0	1.00	332.80	9,230.7	1,981.3	-3,300.8	3,849.8	0.45	0.00	
10,309.0	1.00	42.80	9,321.6	1,982.6	-3,300.6	3,850.3	1.26	0.00	
10,401.0	1.60	75.30	9,413.6	1,983.5	-3,298.8	3,849.2	1.01	0.65	
10,492.0	2.30	87.50	9,504.6	1,983.9	-3,295.8	3,846.8	0.89	0.77	
10,584.0	1.20	109.00	9,596.5	1,983.7	-3,293.0	3,844.3	1.37	-1.20	
10,675.0	1.00	122.50	9,687.5	1,982.9	-3,291.5	3,842.6	0.36	-0.22	
10,767.0	0.60	196.40	9,779.5	1,982.0	-3,290.9	3,841.7	1.10	-0.43	
10,858.0	0.40	151.70	9,870.5	1,981.3	-3,290.9	3,841.3	0.46	-0.22	
10,949.0	0.30	86.20	9,961.5	1,981.0	-3,290.5	3,840.8	0.43	-0.11	
11,041.0	0.50	78.60	10,053.5	1,981.1	-3,289.9	3,840.3	0.22	0.22	
11,132.0	0.80	127.70	10,144.5	1,980.8	-3,289.0	3,839.4	0.66	0.33	
11,224.0	0.80	77.50	10,236.5	1,980.6	-3,287.9	3,838.3	0.74	0.00	
11,315.0	1.10	118.40	10,327.5	1,980.3	-3,286.5	3,837.0	0.79	0.33	
11,407.0	1.50	112.80	10,419.4	1,979.4	-3,284.6	3,834.9	0.46	0.43	
11,498.0	1.50	84.00	10,510.4	1,979.1	-3,282.3	3,832.8	0.82	0.00	
11,590.0	0.70	124.00	10,602.4	1,978.9	-3,280.6	3,831.2	1.16	-0.87	
11,681.0	0.40	175.90	10,693.4	1,978.3	-3,280.2	3,830.5	0.61	-0.33	
11,958.0	1.60	262.40	10,970.4	1,976.8	-3,283.9	3,833.0	0.59	0.43	
12,047.0	2.50	248.60	11,059.3	1,975.9	-3,287.0	3,835.1	1.15	1.01	
12,080.0	2.10	267.40	11,092.3	1,975.6	-3,288.2	3,836.1	2.57	-1.21	Last Cathedral Survey @ 12,080' MD
12,130.0	2.10	267.40	11,142.2	1,975.5	-3,290.1	3,837.6	0.00	0.00	Projection to Bit @ 12,130' MD

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8508C-21 N22 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	WELL @ 7602.0ft (Patterson 306)
<b>Site:</b>	S22-T4S-R96W (N22 496) (Column Pattern)	<b>MD Reference:</b>	WELL @ 7602.0ft (Patterson 306)
<b>Well:</b>	8508C-21 N22 496	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
8508C-21 N22 496 PBH	0.00	0.00	10,952.0	1,978.7	-3,297.3	1,687,075.17	2,249,048.11	39° 41' 22.31 N	108° 10' 7.66 W
- survey misses target center by 13.9ft at 11939.8ft MD (10952.2 TVD, 1976.9 N, -3283.4 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
8508C-21 N22 496 TGT	0.00	0.00	7,292.0	1,988.6	-3,280.3	1,687,084.62	2,249,065.36	39° 41' 22.41 N	108° 10' 7.45 W
- survey misses target center by 140.9ft at 8303.3ft MD (7329.9 TVD, 1926.7 N, -3159.5 E)									
- Point									
8508C-21 N22 496 TGT	0.00	0.00	7,905.3	1,988.6	-3,280.3	1,687,084.62	2,249,065.36	39° 41' 22.41 N	108° 10' 7.45 W
- survey misses target center by 19.1ft at 8893.4ft MD (7907.2 TVD, 1974.3 N, -3267.8 E)									
- Point									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
12,080.0	11,092.3	1,975.6	-3,288.2	Last Cathedral Survey @ 12,080' MD
12,130.0	11,142.2	1,975.5	-3,290.1	Projection to Bit @ 12,130' MD

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