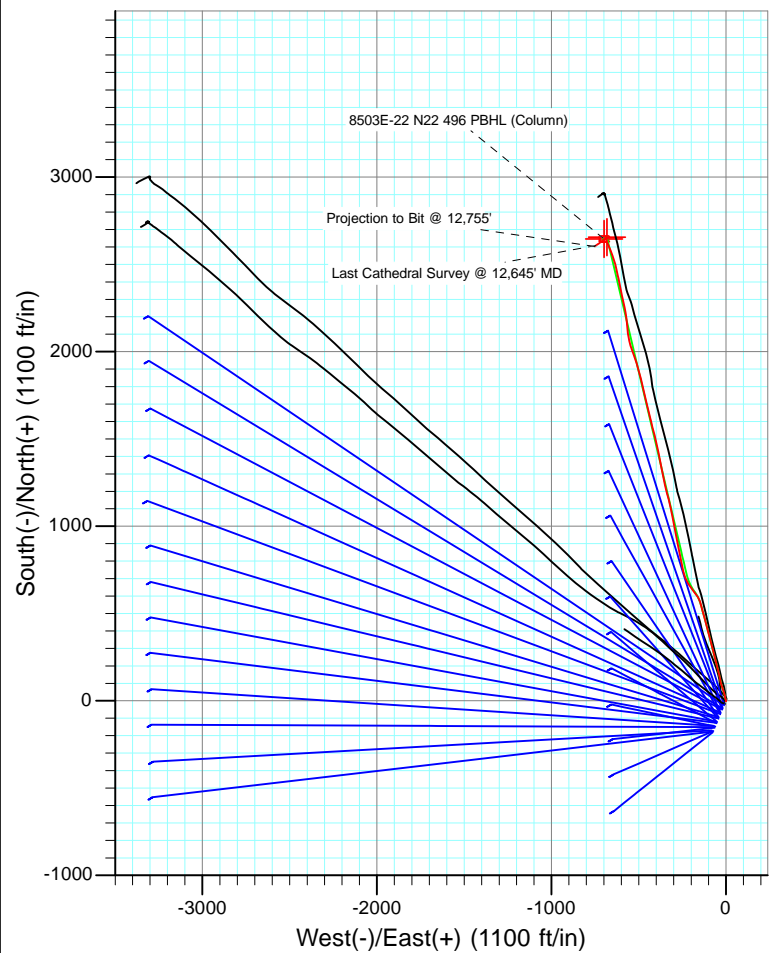
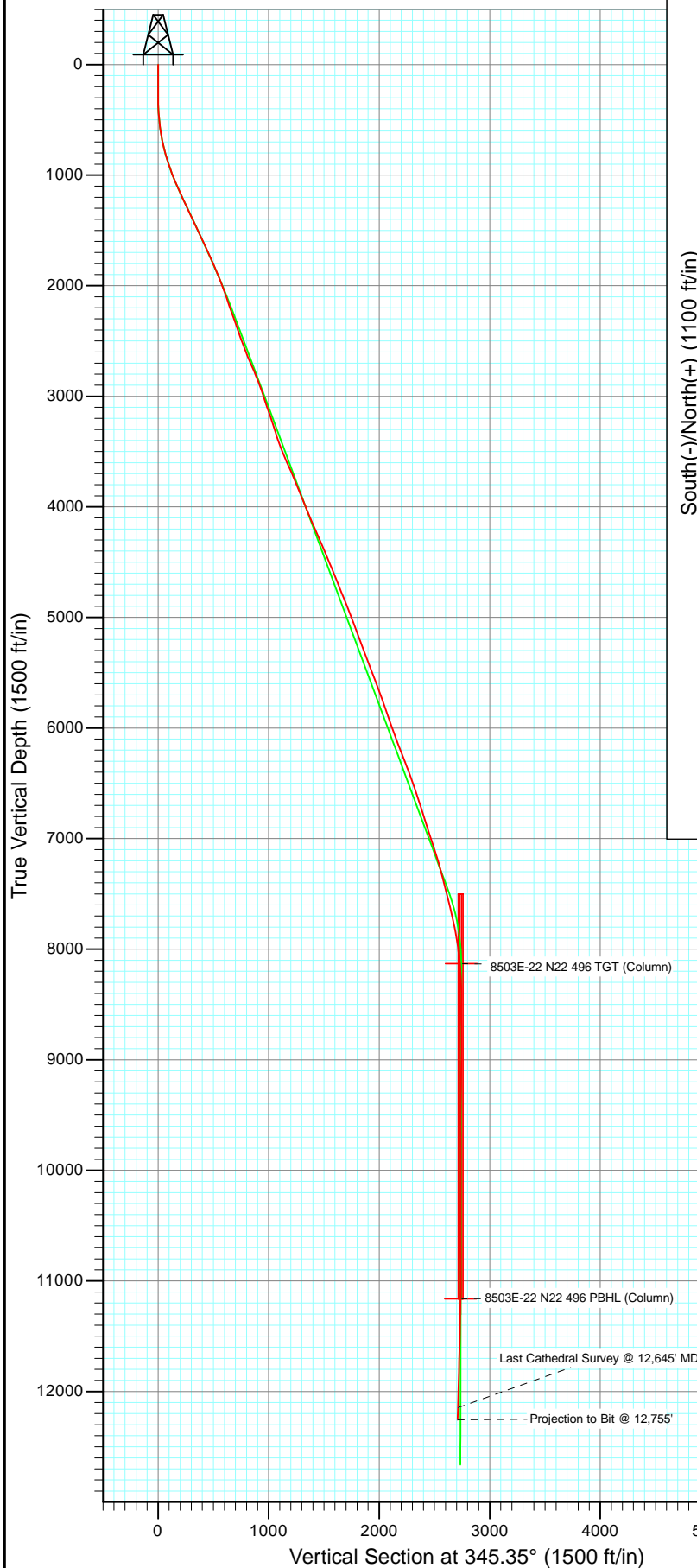




Project: Story Gulch  
 Site: S22-T4S-R96W (N22 496) (Column Pattern)  
 Well: 8503E-22 N22 496  
 Wellbore: DD  
 Design: FINAL



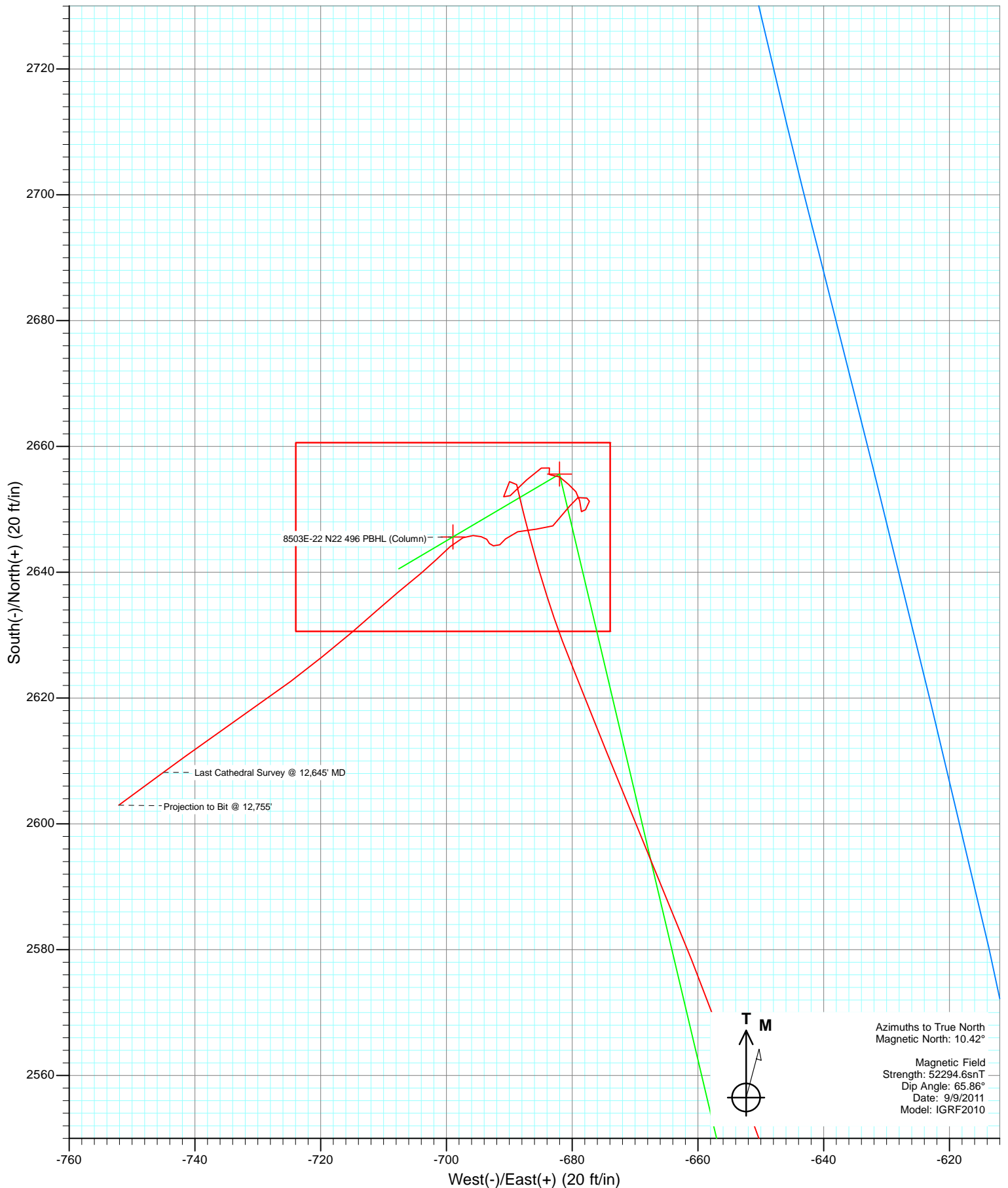
Azimuths to True North  
 Magnetic North: 10.42°

Magnetic Field  
 Strength: 52294.6snT  
 Dip Angle: 65.86°  
 Date: 9/9/2011  
 Model: IGRF2010

DD 8503E-22 N22 496 115372/109955 (SH); 115457/117455 (MH) WELL @ 7602.0ft (Original Well Elev)						
North American Datum 1983 Well 8503E-22 N22 496, True North						
Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD
User	No Target (Freehand)	345.35	Slot	0.0	0.0	0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
8503E-22 N22 496 TGT (Column)	8130.0	2655.6	-682.0	39° 41' 29.41 N	108° 9' 33.88 W	
8503E-22 N22 496 PBHL (Column)	1162.0	2645.6	-699.0	39° 41' 29.31 N	108° 9' 34.09 W	



Project: Story Gulch  
Site: S22-T4S-R96W (N22 496) (Column Pattern)  
Well: 8503E-22 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 8503E-22 N22 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	WELL @ 7602.0ft (Original Well Elev)
<b>Site:</b>	S22-T4S-R96W (N22 496) (Column Pattern)	<b>MD Reference:</b>	WELL @ 7602.0ft (Original Well Elev)
<b>Well:</b>	8503E-22 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	8503E-22 N22 496					
Well Position	+N/-S	0.0 ft	Northing:	1,685,041.28 ft	Latitude:	39° 41' 3.16 N
	+E/-W	0.0 ft	Easting:	2,252,313.40 ft	Longitude:	108° 9' 25.15 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	9/9/2011	10.42	65.86	52,295

<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	345.35	

<b>Survey Program</b>	<b>Date</b>	10/25/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
210.0	2,045.0	Survey #1 (DD)	MWD	Geolink MWD	
2,163.0	12,755.0	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>
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
210.0	0.20	164.80	210.0	-0.4	0.1	-0.4	0.10	0.10	
240.0	0.10	146.30	240.0	-0.4	0.1	-0.4	0.37	-0.33	
330.0	0.90	349.10	330.0	0.2	0.0	0.2	1.10	0.89	
422.0	2.90	343.70	421.9	3.1	-0.8	3.2	2.18	2.17	
513.0	5.80	345.90	512.7	9.8	-2.5	10.1	3.19	3.19	
608.0	9.10	346.60	606.9	21.8	-5.4	22.4	3.47	3.47	
699.0	12.20	344.50	696.3	38.1	-9.7	39.3	3.43	3.41	
791.0	14.80	341.60	785.7	58.6	-16.0	60.7	2.92	2.83	
883.0	17.20	342.30	874.2	82.7	-23.8	86.0	2.62	2.61	
975.0	19.80	347.70	961.4	110.9	-31.3	115.2	3.38	2.83	
1,066.0	22.60	347.80	1,046.2	143.0	-38.3	148.1	3.08	3.08	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8503E-22 N22 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	WELL @ 7602.0ft (Original Well Elev)
<b>Site:</b>	S22-T4S-R96W (N22 496) (Column Pattern)	<b>MD Reference:</b>	WELL @ 7602.0ft (Original Well Elev)
<b>Well:</b>	8503E-22 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
1,158.0	24.80	347.80	1,130.5	179.2	-46.1	185.0	2.39	2.39	
1,250.0	25.50	343.40	1,213.8	217.0	-55.8	224.1	2.17	0.76	
1,342.0	25.30	345.40	1,296.9	255.0	-66.4	263.5	0.96	-0.22	
1,433.0	25.60	345.60	1,379.0	292.9	-76.2	302.6	0.34	0.33	
1,525.0	24.60	345.60	1,462.3	330.7	-85.9	341.7	1.09	-1.09	
1,617.0	24.50	346.70	1,546.0	367.8	-95.1	379.9	0.51	-0.11	
1,709.0	24.60	345.30	1,629.7	404.9	-104.3	418.1	0.64	0.11	
1,800.0	24.90	344.80	1,712.4	441.7	-114.1	456.2	0.40	0.33	
1,892.0	24.00	345.10	1,796.1	478.5	-124.0	494.3	0.99	-0.98	
1,984.0	23.50	343.60	1,880.3	514.1	-134.0	531.3	0.85	-0.54	
2,045.0	22.80	345.50	1,936.4	537.2	-140.4	555.3	1.68	-1.15	Last Cathedral Survey @ 2,045' MD
2,163.0	18.90	338.50	2,046.7	577.2	-153.2	597.2	3.92	-3.31	
2,255.0	19.40	324.00	2,133.6	603.4	-167.6	626.2	5.19	0.54	
2,346.0	21.10	321.10	2,219.0	628.4	-186.8	655.2	2.17	1.87	
2,438.0	22.00	326.60	2,304.6	655.7	-206.7	686.6	2.40	0.98	
2,529.0	19.80	332.70	2,389.6	683.6	-223.1	717.8	3.40	-2.42	
2,621.0	18.90	338.70	2,476.4	711.3	-235.7	747.8	2.37	-0.98	
2,712.0	21.20	346.40	2,561.9	741.1	-244.9	778.9	3.84	2.53	
2,804.0	22.70	348.70	2,647.2	774.7	-252.3	813.3	1.88	1.63	
2,895.0	23.40	349.00	2,731.0	809.6	-259.2	848.8	0.78	0.77	
2,986.0	22.20	349.20	2,814.9	844.2	-265.9	884.0	1.32	-1.32	
3,078.0	20.70	347.50	2,900.5	877.2	-272.6	917.6	1.76	-1.63	
3,169.0	18.80	350.40	2,986.1	907.3	-278.6	948.3	2.35	-2.09	
3,260.0	18.30	349.70	3,072.4	935.9	-283.6	977.2	0.60	-0.55	
3,351.0	19.70	347.90	3,158.4	964.9	-289.3	1,006.7	1.67	1.54	
3,443.0	17.50	348.10	3,245.6	993.6	-295.4	1,036.0	2.39	-2.39	
3,534.0	17.30	348.30	3,332.5	1,020.3	-301.0	1,063.2	0.23	-0.22	
3,626.0	20.30	349.10	3,419.6	1,049.3	-306.8	1,092.8	3.27	3.26	
3,718.0	22.10	350.20	3,505.3	1,082.1	-312.8	1,126.0	2.00	1.96	
3,809.0	23.90	346.70	3,589.1	1,116.9	-319.9	1,161.5	2.48	1.98	
3,900.0	24.40	346.00	3,672.1	1,153.0	-328.7	1,198.7	0.63	0.55	
3,992.0	22.20	345.60	3,756.6	1,188.3	-337.6	1,235.1	2.40	-2.39	
4,083.0	22.20	345.60	3,840.9	1,221.6	-346.2	1,269.5	0.00	0.00	
4,175.0	21.50	348.50	3,926.3	1,255.0	-353.9	1,303.7	1.40	-0.76	
4,267.0	22.20	348.40	4,011.7	1,288.5	-360.7	1,337.9	0.76	0.76	
4,358.0	23.20	349.90	4,095.6	1,323.0	-367.3	1,372.9	1.27	1.10	
4,449.0	24.50	347.60	4,178.8	1,359.1	-374.5	1,409.6	1.76	1.43	
4,541.0	22.90	348.30	4,263.1	1,395.3	-382.2	1,446.6	1.77	-1.74	
4,633.0	23.30	350.10	4,347.7	1,430.7	-389.0	1,482.6	0.88	0.43	
4,724.0	22.70	346.70	4,431.5	1,465.5	-396.1	1,518.1	1.60	-0.66	
4,816.0	23.30	345.50	4,516.2	1,500.4	-404.8	1,554.0	0.83	0.65	
4,907.0	21.60	346.40	4,600.3	1,534.1	-413.2	1,588.8	1.91	-1.87	
4,999.0	21.80	345.70	4,685.7	1,567.1	-421.4	1,622.8	0.36	0.22	
5,090.0	22.30	346.80	4,770.1	1,600.3	-429.5	1,656.9	0.71	0.55	
5,182.0	21.30	345.70	4,855.5	1,633.5	-437.6	1,691.1	1.17	-1.09	
5,273.0	21.80	346.90	4,940.1	1,666.0	-445.6	1,724.5	0.73	0.55	
5,365.0	20.70	347.30	5,025.9	1,698.5	-453.0	1,757.8	1.21	-1.20	
5,456.0	20.30	348.00	5,111.1	1,729.6	-459.8	1,789.7	0.52	-0.44	
5,548.0	20.80	344.90	5,197.3	1,761.0	-467.4	1,822.0	1.30	0.54	
5,640.0	20.80	344.80	5,283.3	1,792.5	-475.9	1,854.6	0.04	0.00	
5,731.0	20.30	346.70	5,368.5	1,823.5	-483.8	1,886.6	0.92	-0.55	
5,823.0	20.70	346.30	5,454.7	1,854.8	-491.3	1,918.8	0.46	0.43	
5,915.0	21.60	345.80	5,540.5	1,887.0	-499.3	1,952.0	1.00	0.98	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8503E-22 N22 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	WELL @ 7602.0ft (Original Well Elev)
<b>Site:</b>	S22-T4S-R96W (N22 496) (Column Pattern)	<b>MD Reference:</b>	WELL @ 7602.0ft (Original Well Elev)
<b>Well:</b>	8503E-22 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
6,006.0	19.60	344.30	5,625.6	1,918.0	-507.6	1,984.0	2.27	-2.20	
6,097.0	20.00	341.40	5,711.3	1,947.4	-516.7	2,014.8	1.17	0.44	
6,189.0	19.70	340.30	5,797.8	1,976.9	-526.9	2,045.9	0.52	-0.33	
6,281.0	19.40	340.50	5,884.5	2,005.9	-537.2	2,076.6	0.33	-0.33	
6,372.0	19.20	342.80	5,970.4	2,034.5	-546.7	2,106.6	0.86	-0.22	
6,464.0	20.20	347.20	6,057.0	2,064.4	-554.7	2,137.6	1.94	1.09	
6,555.0	21.10	352.70	6,142.2	2,096.0	-560.3	2,169.5	2.35	0.99	
6,647.0	21.80	354.00	6,227.8	2,129.4	-564.1	2,202.8	0.92	0.76	
6,738.0	21.10	354.10	6,312.5	2,162.5	-567.6	2,235.7	0.77	-0.77	
6,830.0	19.80	353.00	6,398.7	2,194.4	-571.2	2,267.6	1.47	-1.41	
6,921.0	19.70	350.30	6,484.3	2,224.8	-575.7	2,298.1	1.01	-0.11	
7,013.0	19.10	348.30	6,571.1	2,254.9	-581.3	2,328.6	0.97	-0.65	
7,104.0	18.40	347.60	6,657.3	2,283.5	-587.4	2,357.8	0.81	-0.77	
7,195.0	17.20	346.50	6,743.9	2,310.6	-593.7	2,385.6	1.37	-1.32	
7,287.0	17.50	348.50	6,831.7	2,337.4	-599.6	2,413.0	0.73	0.33	
7,379.0	18.50	348.10	6,919.2	2,365.2	-605.4	2,441.4	1.10	1.09	
7,470.0	17.70	348.40	7,005.7	2,392.9	-611.1	2,469.7	0.89	-0.88	
7,561.0	18.00	348.80	7,092.3	2,420.2	-616.6	2,497.5	0.36	0.33	
7,652.0	17.10	346.30	7,179.1	2,447.0	-622.5	2,524.9	1.29	-0.99	
7,744.0	15.70	346.70	7,267.4	2,472.3	-628.6	2,550.9	1.53	-1.52	
7,835.0	14.40	346.90	7,355.2	2,495.3	-634.0	2,574.5	1.43	-1.43	
7,927.0	13.80	344.90	7,444.5	2,517.0	-639.4	2,596.9	0.84	-0.65	
8,018.0	14.50	340.40	7,532.7	2,538.2	-646.1	2,619.1	1.43	0.77	
8,110.0	13.40	340.00	7,622.0	2,559.1	-653.6	2,641.2	1.20	-1.20	
8,201.0	12.80	338.00	7,710.6	2,578.4	-661.0	2,661.7	0.83	-0.66	
8,293.0	11.30	337.40	7,800.6	2,596.1	-668.3	2,680.7	1.64	-1.63	
8,384.0	9.90	338.20	7,890.0	2,611.6	-674.6	2,697.3	1.55	-1.54	
8,476.0	8.30	338.20	7,980.9	2,625.1	-680.0	2,711.8	1.74	-1.74	
8,568.0	6.30	342.60	8,072.1	2,636.1	-684.0	2,723.4	2.26	-2.17	
8,659.0	4.80	345.00	8,162.7	2,644.6	-686.5	2,732.2	1.67	-1.65	
8,751.0	2.60	346.20	8,254.5	2,650.3	-688.0	2,738.1	2.39	-2.39	
8,842.0	2.10	346.40	8,345.4	2,653.9	-688.8	2,741.9	0.55	-0.55	
8,934.0	1.70	211.50	8,437.4	2,654.4	-689.9	2,742.6	3.82	-0.43	
9,025.0	1.60	191.10	8,528.4	2,652.0	-690.9	2,740.5	0.65	-0.11	
9,117.0	2.40	42.00	8,620.4	2,652.2	-689.9	2,740.4	4.20	0.87	
9,208.0	2.20	51.10	8,711.3	2,654.7	-687.2	2,742.2	0.46	-0.22	
9,300.0	1.50	51.70	8,803.2	2,656.5	-684.9	2,743.4	0.76	-0.76	
9,391.0	1.00	154.00	8,894.2	2,656.6	-683.6	2,743.1	2.17	-0.55	
9,483.0	0.60	234.10	8,986.2	2,655.6	-683.7	2,742.1	1.17	-0.43	
9,574.0	0.90	76.20	9,077.2	2,655.5	-683.3	2,742.0	1.62	0.33	
9,666.0	1.00	127.40	9,169.2	2,655.1	-682.0	2,741.3	0.90	0.11	
9,757.0	1.30	129.90	9,260.2	2,654.0	-680.6	2,739.8	0.33	0.33	
9,849.0	0.80	144.60	9,352.2	2,652.8	-679.4	2,738.4	0.61	-0.54	
9,940.0	1.20	165.40	9,443.2	2,651.4	-678.8	2,736.8	0.59	0.44	
10,032.0	1.00	178.30	9,535.1	2,649.6	-678.5	2,735.1	0.34	-0.22	
10,123.0	1.60	30.10	9,626.1	2,649.9	-677.9	2,735.2	2.75	0.66	
10,215.0	0.30	358.10	9,718.1	2,651.3	-677.2	2,736.4	1.47	-1.41	
10,306.0	0.60	303.30	9,809.1	2,651.8	-677.6	2,737.0	0.54	0.33	
10,398.0	1.30	259.90	9,901.1	2,651.9	-679.1	2,737.4	1.04	0.76	
10,490.0	1.50	194.50	9,993.1	2,650.5	-680.4	2,736.4	1.65	0.22	
10,673.0	1.40	248.00	10,176.0	2,647.4	-683.1	2,734.1	0.71	-0.05	
10,764.0	2.00	266.50	10,267.0	2,646.8	-685.7	2,734.2	0.89	0.66	
10,850.0	2.00	257.60	10,352.9	2,646.4	-688.7	2,734.6	0.36	0.00	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well 8503E-22 N22 496
<b>Project:</b>	Story Gulch	<b>TVD Reference:</b>	WELL @ 7602.0ft (Original Well Elev)
<b>Site:</b>	S22-T4S-R96W (N22 496) (Column Pattern)	<b>MD Reference:</b>	WELL @ 7602.0ft (Original Well Elev)
<b>Well:</b>	8503E-22 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
10,941.0	1.10	206.10	10,443.9	2,645.3	-690.6	2,734.0	1.73	-0.99	
11,032.0	0.70	254.70	10,534.9	2,644.4	-691.5	2,733.3	0.91	-0.44	
11,123.0	0.60	267.90	10,625.9	2,644.2	-692.5	2,733.4	0.20	-0.11	
11,215.0	0.50	339.50	10,717.9	2,644.6	-693.1	2,733.9	0.70	-0.11	
11,307.0	0.50	315.00	10,809.9	2,645.2	-693.6	2,734.6	0.23	0.00	
11,398.0	0.80	281.60	10,900.9	2,645.6	-694.5	2,735.3	0.52	0.33	
11,490.0	0.80	275.00	10,992.8	2,645.8	-695.7	2,735.8	0.10	0.00	
11,582.0	1.30	247.40	11,084.8	2,645.5	-697.3	2,735.8	0.76	0.54	
11,673.0	1.90	227.50	11,175.8	2,644.1	-699.4	2,735.0	0.89	0.66	
11,765.0	1.80	226.10	11,267.7	2,642.0	-701.6	2,733.6	0.12	-0.11	
11,857.0	2.40	229.80	11,359.7	2,639.8	-704.1	2,732.0	0.67	0.65	
11,948.0	3.30	231.30	11,450.6	2,636.9	-707.6	2,730.1	0.99	0.99	
12,040.0	2.50	226.20	11,542.4	2,633.9	-711.1	2,728.1	0.91	-0.87	
12,131.0	3.90	230.50	11,633.3	2,630.5	-714.9	2,725.8	1.56	1.54	
12,223.0	3.90	230.20	11,725.1	2,626.5	-719.7	2,723.2	0.02	0.00	
12,315.0	4.00	234.10	11,816.9	2,622.7	-724.7	2,720.7	0.31	0.11	
12,406.0	4.40	235.10	11,907.6	2,618.8	-730.2	2,718.3	0.45	0.44	
12,589.0	4.30	234.10	12,090.1	2,610.8	-741.5	2,713.4	0.07	-0.05	
12,645.0	4.60	233.70	12,145.9	2,608.2	-745.0	2,711.8	0.54	0.54	Last Cathedral Survey @ 12,645' MD
12,755.0	4.60	233.70	12,255.6	2,603.0	-752.1	2,708.6	0.00	0.00	Projection to Bit @ 12,755'

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
8503E-22 N22 496 PBH	0.00	0.00	11,162.0	2,645.6	-699.0	1,687,706.21	2,251,692.11	39° 41' 29.31 N	108° 9' 34.09 W
- actual wellpath misses target center by 1.3ft at 11659.2ft MD (11162.0 TVD, 2644.4 N, -699.1 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
8503E-22 N22 496 TGT	0.00	0.00	8,130.0	2,655.6	-682.0	1,687,715.70	2,251,709.35	39° 41' 29.41 N	108° 9' 33.88 W
- actual wellpath misses target center by 14.3ft at 8627.4ft MD (8131.2 TVD, 2641.9 N, -685.7 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,045.0	1,936.4	537.2	-140.4	Last Cathedral Survey @ 2,045' MD	
12,645.0	12,145.9	2,608.2	-745.0	Last Cathedral Survey @ 12,645' MD	
12,755.0	12,255.6	2,603.0	-752.1	Projection to Bit @ 12,755'	

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