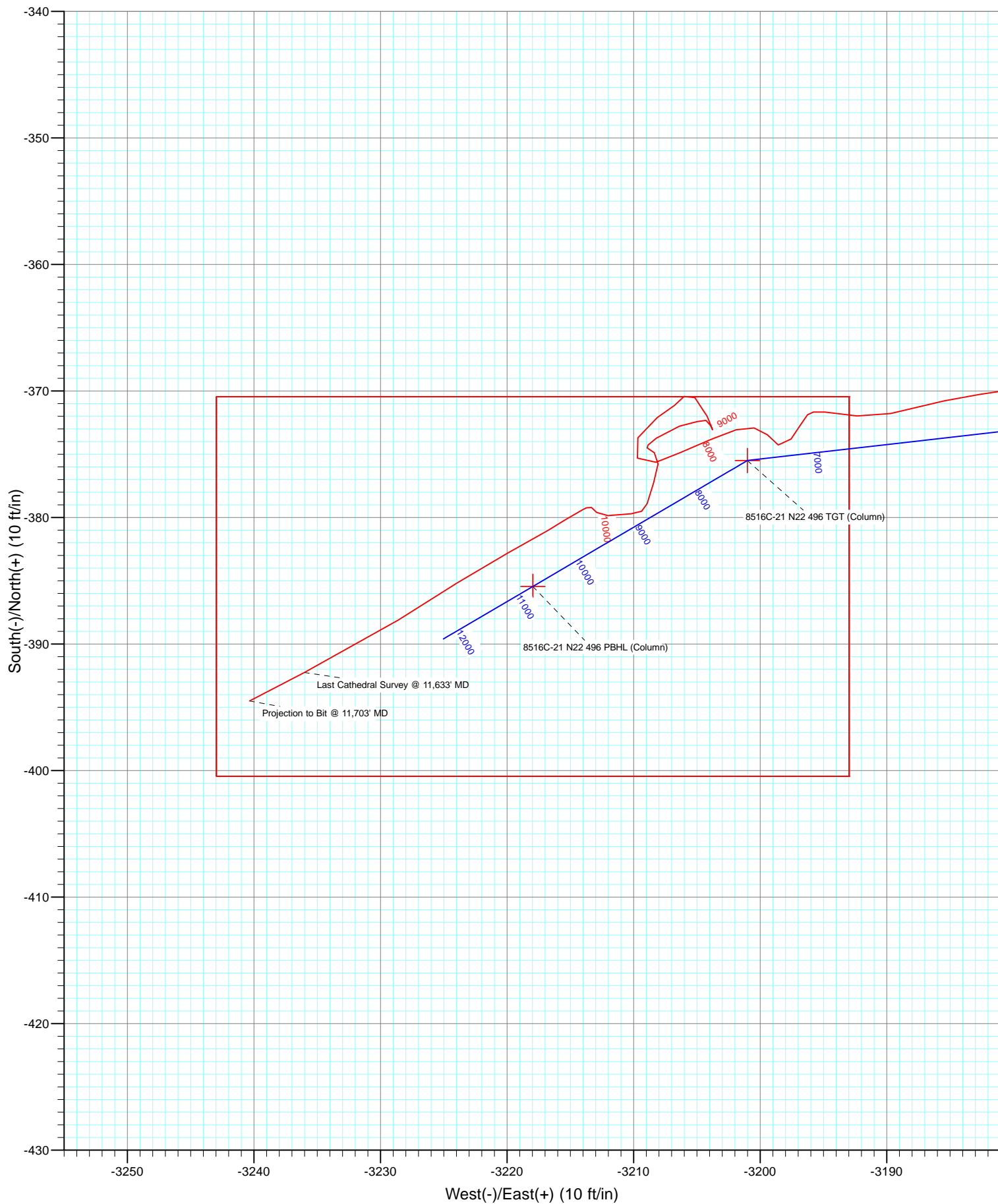


Azimuths to True North
 Magnetic North: 10.30°

Magnetic Field
 Strength: 52206.4snT
 Dip Angle: 65.83°
 Date: 7/24/2012
 Model: IGRF2010

FINAL 8516C-21 N22 496 125459; 163455; DN							
WELL @ 7602.0ft (Patterson 306) North American Datum 1983 Well 8516C-21 N22 496, True North							
Type User	Target		Azimuth	Origin Type	N/S	E/W	From TVD
	No Target (Freehand)		262.95	Slot	0.0	0.0	0.0
Name		TVD	+N/-S	+E/-W	Latitude		Longitude
8516C-21 N22 496 TGT (Column)		7152.0	-375.5	-3201.0	39° 40' 57.70 N		108° 10' 7.17 W
8516C-21 N22 496 PBHL (Column)		10812.0	-385.4	-3218.0	39° 40' 57.60 N		108° 10' 7.38 W



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8516C-21 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson 306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson 306)
Well:	8516C-21 N22 496	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Project	Story Gulch		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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	8516C-21 N22 496					
Well Position	+N/-S	0.0 ft	Northing:	1,684,866.55 ft	Latitude:	39° 41' 1.41 N
	+E/-W	0.0 ft	Easting:	2,252,224.42 ft	Longitude:	108° 9' 26.22 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,569.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/24/2012	10.31	65.83	52,206

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	262.95	

Survey Program	Date	7/31/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
302.0	2,062.0	Survey #1 (DD)	MWD	Geolink MWD	
2,165.0	11,703.0	Survey #2 (DD)	MWD	Geolink MWD	

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	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
302.0	3.40	268.70	301.8	-0.2	-9.0	8.9	1.13	1.13		
334.0	4.90	265.30	333.7	-0.3	-11.3	11.2	4.75	4.69		
364.0	6.00	263.00	363.6	-0.6	-14.1	14.1	3.74	3.67		
394.0	7.20	263.10	393.4	-1.0	-17.5	17.5	4.00	4.00		
426.0	8.30	254.90	425.1	-1.9	-21.7	21.8	4.87	3.44		
521.0	11.90	254.80	518.6	-6.2	-37.8	38.3	3.79	3.79		
613.0	13.90	265.10	608.3	-9.7	-58.0	58.7	3.30	2.17		
705.0	17.90	265.60	696.8	-11.7	-83.1	83.9	4.35	4.35		
796.0	21.00	262.50	782.6	-14.9	-113.2	114.2	3.59	3.41		
888.0	23.60	262.10	867.7	-19.6	-147.8	149.1	2.83	2.83		
979.0	26.70	263.10	950.0	-24.6	-186.2	187.8	3.44	3.41		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8516C-21 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson 306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson 306)
Well:	8516C-21 N22 496	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	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
1,070.0	29.30	264.30	1,030.4	-29.2	-228.6	230.5	2.92	2.86	
1,162.0	29.80	266.40	1,110.4	-32.9	-273.8	275.8	1.25	0.54	
1,254.0	28.80	265.50	1,190.6	-36.1	-318.8	320.8	1.19	-1.09	
1,345.0	29.80	265.00	1,270.0	-39.8	-363.1	365.3	1.13	1.10	
1,437.0	29.40	264.90	1,350.0	-43.8	-408.4	410.7	0.44	-0.43	
1,528.0	28.70	261.00	1,429.6	-49.2	-452.2	454.8	2.22	-0.77	
1,619.0	27.80	260.00	1,509.7	-56.3	-494.7	497.9	1.12	-0.99	
1,711.0	27.20	259.30	1,591.3	-63.9	-536.5	540.3	0.74	-0.65	
1,802.0	27.80	260.00	1,672.0	-71.4	-577.8	582.2	0.75	0.66	
1,893.0	28.70	261.50	1,752.2	-78.4	-620.3	625.3	1.26	0.99	
1,985.0	27.80	262.10	1,833.2	-84.6	-663.4	668.8	1.03	-0.98	
2,062.0	27.10	262.20	1,901.6	-89.4	-698.6	704.3	0.91	-0.91	Last Cathedral Survey 2,062' MD
2,165.0	24.50	259.40	1,994.3	-96.5	-742.9	749.1	2.79	-2.52	
2,349.0	23.60	256.70	2,162.3	-112.0	-816.2	823.8	0.77	-0.49	
2,440.0	26.50	256.10	2,244.8	-121.1	-853.6	862.1	3.20	3.19	
2,532.0	25.90	258.60	2,327.3	-130.0	-893.3	902.5	1.37	-0.65	
2,624.0	25.10	260.30	2,410.4	-137.3	-932.2	942.0	1.18	-0.87	
2,715.0	26.40	264.10	2,492.3	-142.6	-971.4	981.5	2.31	1.43	
2,807.0	27.80	271.40	2,574.2	-144.2	-1,013.2	1,023.2	3.92	1.52	
2,899.0	29.70	269.10	2,654.9	-144.0	-1,057.4	1,067.1	2.39	2.07	
2,991.0	29.10	267.80	2,735.1	-145.2	-1,102.5	1,112.0	0.95	-0.65	
3,082.0	28.30	266.50	2,814.9	-147.4	-1,146.2	1,155.6	1.12	-0.88	
3,174.0	28.60	266.90	2,895.8	-149.9	-1,189.9	1,199.3	0.39	0.33	
3,265.0	25.90	265.50	2,976.7	-152.6	-1,231.5	1,240.9	3.05	-2.97	
3,357.0	24.50	267.20	3,059.9	-155.2	-1,270.6	1,280.0	1.71	-1.52	
3,449.0	25.50	265.00	3,143.3	-157.8	-1,309.4	1,318.8	1.48	1.09	
3,540.0	26.40	262.60	3,225.1	-162.1	-1,349.0	1,358.7	1.52	0.99	
3,631.0	28.30	261.90	3,305.9	-167.8	-1,390.4	1,400.5	2.12	2.09	
3,723.0	30.90	262.00	3,385.9	-174.1	-1,435.4	1,445.9	2.83	2.83	
3,815.0	31.40	262.20	3,464.7	-180.7	-1,482.5	1,493.5	0.55	0.54	
3,907.0	30.00	261.50	3,543.8	-187.3	-1,529.0	1,540.4	1.57	-1.52	
3,998.0	28.80	260.80	3,623.0	-194.2	-1,573.1	1,585.1	1.37	-1.32	
4,090.0	30.10	259.90	3,703.1	-201.8	-1,617.7	1,630.3	1.49	1.41	
4,181.0	29.90	262.00	3,782.0	-208.9	-1,662.7	1,675.7	1.17	-0.22	
4,273.0	29.60	263.30	3,861.8	-214.8	-1,707.9	1,721.4	0.77	-0.33	
4,364.0	29.70	266.40	3,940.9	-218.8	-1,752.8	1,766.4	1.69	0.11	
4,456.0	30.70	266.20	4,020.4	-221.8	-1,798.9	1,812.6	1.09	1.09	
4,548.0	30.10	264.80	4,099.8	-225.5	-1,845.3	1,859.1	1.01	-0.65	
4,639.0	30.10	265.80	4,178.5	-229.2	-1,890.8	1,904.7	0.55	0.00	
4,731.0	28.50	265.00	4,258.7	-232.8	-1,935.7	1,949.6	1.79	-1.74	
4,823.0	29.10	264.40	4,339.4	-236.9	-1,979.8	1,993.9	0.72	0.65	
4,914.0	29.00	263.80	4,418.9	-241.4	-2,023.8	2,038.1	0.34	-0.11	
5,006.0	29.70	264.80	4,499.1	-245.9	-2,068.7	2,083.2	0.93	0.76	
5,097.0	28.60	263.40	4,578.6	-250.5	-2,112.7	2,127.5	1.42	-1.21	
5,189.0	29.60	264.00	4,659.0	-255.4	-2,157.2	2,172.3	1.13	1.09	
5,280.0	28.80	263.90	4,738.4	-260.0	-2,201.4	2,216.6	0.88	-0.88	
5,371.0	29.20	262.20	4,818.0	-265.4	-2,245.2	2,260.8	1.01	0.44	
5,463.0	27.60	262.10	4,898.9	-271.4	-2,288.5	2,304.5	1.74	-1.74	
5,554.0	25.70	261.10	4,980.3	-277.3	-2,328.9	2,345.3	2.15	-2.09	
5,646.0	26.60	261.10	5,062.8	-283.6	-2,368.9	2,385.8	0.98	0.98	
5,738.0	25.00	261.10	5,145.7	-289.8	-2,408.5	2,425.9	1.74	-1.74	
5,829.0	26.30	262.00	5,227.7	-295.6	-2,447.5	2,465.2	1.49	1.43	
5,921.0	28.00	267.40	5,309.6	-299.4	-2,489.2	2,507.1	3.25	1.85	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8516C-21 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson 306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson 306)
Well:	8516C-21 N22 496	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	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
6,012.0	26.60	266.80	5,390.4	-301.5	-2,530.9	2,548.8	1.57	-1.54	
6,104.0	23.30	265.40	5,473.8	-304.1	-2,569.6	2,587.5	3.64	-3.59	
6,196.0	22.90	265.50	5,558.5	-307.0	-2,605.6	2,623.6	0.44	-0.43	
6,287.0	23.60	262.60	5,642.1	-310.7	-2,641.3	2,659.5	1.47	0.77	
6,379.0	24.70	258.80	5,726.0	-316.8	-2,678.4	2,697.1	2.07	1.20	
6,470.0	26.20	259.70	5,808.2	-324.1	-2,716.9	2,736.1	1.70	1.65	
6,562.0	28.10	260.10	5,890.0	-331.4	-2,758.2	2,778.0	2.07	2.07	
6,653.0	29.90	263.10	5,969.6	-337.8	-2,801.8	2,822.1	2.54	1.98	
6,745.0	31.10	263.60	6,048.9	-343.3	-2,848.2	2,868.8	1.33	1.30	
6,836.0	29.90	266.80	6,127.3	-347.1	-2,894.2	2,914.9	2.22	-1.32	
6,928.0	26.80	268.30	6,208.3	-349.0	-2,937.8	2,958.5	3.46	-3.37	
7,020.0	25.30	264.00	6,290.9	-351.7	-2,978.1	2,998.8	2.62	-1.63	
7,111.0	23.30	265.20	6,373.9	-355.2	-3,015.4	3,036.2	2.26	-2.20	
7,203.0	20.50	265.50	6,459.2	-358.0	-3,049.6	3,070.5	3.05	-3.04	
7,295.0	17.70	263.90	6,546.1	-360.8	-3,079.6	3,100.6	3.10	-3.04	
7,386.0	16.10	265.60	6,633.2	-363.2	-3,105.9	3,127.0	1.84	-1.76	
7,478.0	14.70	264.40	6,721.9	-365.3	-3,130.3	3,151.4	1.56	-1.52	
7,569.0	11.50	266.80	6,810.5	-367.0	-3,150.8	3,172.0	3.57	-3.52	
7,661.0	9.10	263.30	6,901.0	-368.3	-3,167.2	3,188.5	2.69	-2.61	
7,752.0	6.50	262.80	6,991.2	-369.8	-3,179.4	3,200.8	2.86	-2.86	
7,844.0	4.10	254.80	7,082.8	-371.3	-3,187.8	3,209.3	2.72	-2.61	
7,913.8	2.29	268.73	7,152.5	-372.0	-3,191.6	3,213.1	2.80	-2.60	8516C-21 N22 496 TGT (Column)
7,935.0	1.80	278.30	7,173.7	-372.0	-3,192.3	3,213.9	2.80	-2.30	
8,027.0	1.40	275.30	7,265.6	-371.7	-3,194.9	3,216.4	0.44	-0.43	
8,119.0	0.50	217.80	7,357.6	-371.9	-3,196.3	3,217.7	1.31	-0.98	
8,211.0	0.60	211.40	7,449.6	-372.6	-3,196.8	3,218.3	0.13	0.11	
8,302.0	1.20	215.10	7,540.6	-373.8	-3,197.6	3,219.3	0.66	0.66	
8,393.0	0.70	303.60	7,631.6	-374.3	-3,198.6	3,220.3	1.51	-0.55	
8,485.0	0.80	320.90	7,723.6	-373.5	-3,199.4	3,221.1	0.27	0.11	
8,576.0	0.80	273.80	7,814.6	-372.9	-3,200.5	3,222.0	0.70	0.00	
8,668.0	1.00	256.90	7,906.6	-373.1	-3,201.9	3,223.5	0.36	0.22	
8,759.0	1.80	244.60	7,997.5	-373.9	-3,204.0	3,225.6	0.93	0.88	
8,851.0	1.40	248.90	8,089.5	-374.9	-3,206.3	3,228.1	0.45	-0.43	
8,942.0	1.20	248.40	8,180.5	-375.6	-3,208.2	3,230.1	0.22	-0.22	
9,034.0	1.10	320.30	8,272.5	-375.3	-3,209.7	3,231.5	1.47	-0.11	
9,125.0	1.40	32.30	8,363.4	-373.7	-3,209.7	3,231.3	1.64	0.33	
9,217.0	1.40	55.30	8,455.4	-372.1	-3,208.1	3,229.5	0.61	0.00	
9,309.0	0.70	54.00	8,547.4	-371.1	-3,206.8	3,228.1	0.76	-0.76	
9,400.0	0.60	38.40	8,638.4	-370.4	-3,206.0	3,227.2	0.22	-0.11	
9,492.0	0.90	129.90	8,730.4	-370.5	-3,205.2	3,226.4	1.19	0.33	
9,584.0	1.40	157.60	8,822.4	-372.0	-3,204.2	3,225.6	0.80	0.54	
9,675.0	0.00	316.50	8,913.4	-373.1	-3,203.8	3,225.3	1.54	-1.54	
9,767.0	0.50	331.30	9,005.4	-372.7	-3,203.9	3,225.5	0.54	0.54	
9,858.0	0.20	280.30	9,096.4	-372.3	-3,204.3	3,225.8	0.45	-0.33	
9,950.0	0.70	256.10	9,188.4	-372.4	-3,205.0	3,226.5	0.57	0.54	
10,041.0	1.10	255.30	9,279.4	-372.8	-3,206.4	3,227.9	0.44	0.44	
10,133.0	1.50	233.20	9,371.3	-373.7	-3,208.2	3,229.8	0.69	0.43	
10,225.0	0.30	100.30	9,463.3	-374.5	-3,208.9	3,230.6	1.87	-1.30	
10,317.0	0.60	135.90	9,555.3	-374.9	-3,208.4	3,230.1	0.43	0.33	
10,408.0	0.70	184.80	9,646.3	-375.8	-3,208.1	3,229.9	0.60	0.11	
10,500.0	1.20	198.30	9,738.3	-377.3	-3,208.4	3,230.5	0.59	0.54	
10,591.0	1.00	196.20	9,829.3	-378.9	-3,208.9	3,231.2	0.22	-0.22	
10,683.0	1.30	269.40	9,921.3	-379.7	-3,210.2	3,232.5	1.51	0.33	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8516C-21 N22 496
Project:	Story Gulch	TVD Reference:	WELL @ 7602.0ft (Patterson 306)
Site:	S22-T4S-R96W (N22 496) (Column Pattern)	MD Reference:	WELL @ 7602.0ft (Patterson 306)
Well:	8516C-21 N22 496	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	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
10,775.0	1.00	260.30	10,013.2	-379.8	-3,212.0	3,234.4	0.38	-0.33	
10,867.0	0.50	347.30	10,105.2	-379.6	-3,212.9	3,235.2	1.19	-0.54	
10,958.0	0.40	269.40	10,196.2	-379.2	-3,213.3	3,235.6	0.63	-0.11	
11,050.0	0.10	255.00	10,288.2	-379.2	-3,213.7	3,236.0	0.33	-0.33	
11,142.0	1.10	240.10	10,380.2	-379.7	-3,214.6	3,236.9	1.09	1.09	
11,233.0	2.10	238.30	10,471.2	-381.0	-3,216.7	3,239.2	1.10	1.10	
11,325.0	2.60	242.60	10,563.1	-382.9	-3,220.0	3,242.7	0.58	0.54	
11,417.0	3.10	236.50	10,655.0	-385.2	-3,224.0	3,246.9	0.63	0.54	
11,508.0	3.80	238.90	10,745.8	-388.1	-3,228.6	3,251.8	0.79	0.77	
11,573.3	3.90	240.88	10,811.0	-390.3	-3,232.4	3,255.8	0.26	0.16	8516C-21 N22 496 PBHL (Column)
11,633.0	4.00	242.60	10,870.5	-392.2	-3,236.0	3,259.7	0.26	0.16	Last Cathedral Survey @ 11,633' MD
11,703.0	4.00	242.60	10,940.4	-394.5	-3,240.3	3,264.3	0.00	0.00	Projection to Bit @ 11,703' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
8516C-21 N22 496 TGT	0.00	0.00	7,152.0	-375.5	-3,201.0	1,684,584.84	2,249,013.81	39° 40' 57.70 N	108° 10' 7.17 W
- hit/miss target									
- Shape									
- actual wellpath misses target center by 10.0ft at 7913.8ft MD (7152.5 TVD, -372.0 N, -3191.6 E)									
- Point									
8516C-21 N22 496 PBH	0.00	0.00	10,812.0	-385.4	-3,218.0	1,684,575.38	2,248,996.57	39° 40' 57.60 N	108° 10' 7.38 W
- actual wellpath misses target center by 15.3ft at 11573.3ft MD (10811.0 TVD, -390.3 N, -3232.4 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,062.0	1,901.6	-89.4	-698.6	Last Cathedral Survey 2,062' MD	
11,633.0	10,870.5	-392.2	-3,236.0	Last Cathedral Survey @ 11,633' MD	
11,703.0	10,940.4	-394.5	-3,240.3	Projection to Bit @ 11,703' MD	

Checked By: _____ Approved By: _____ Date: _____