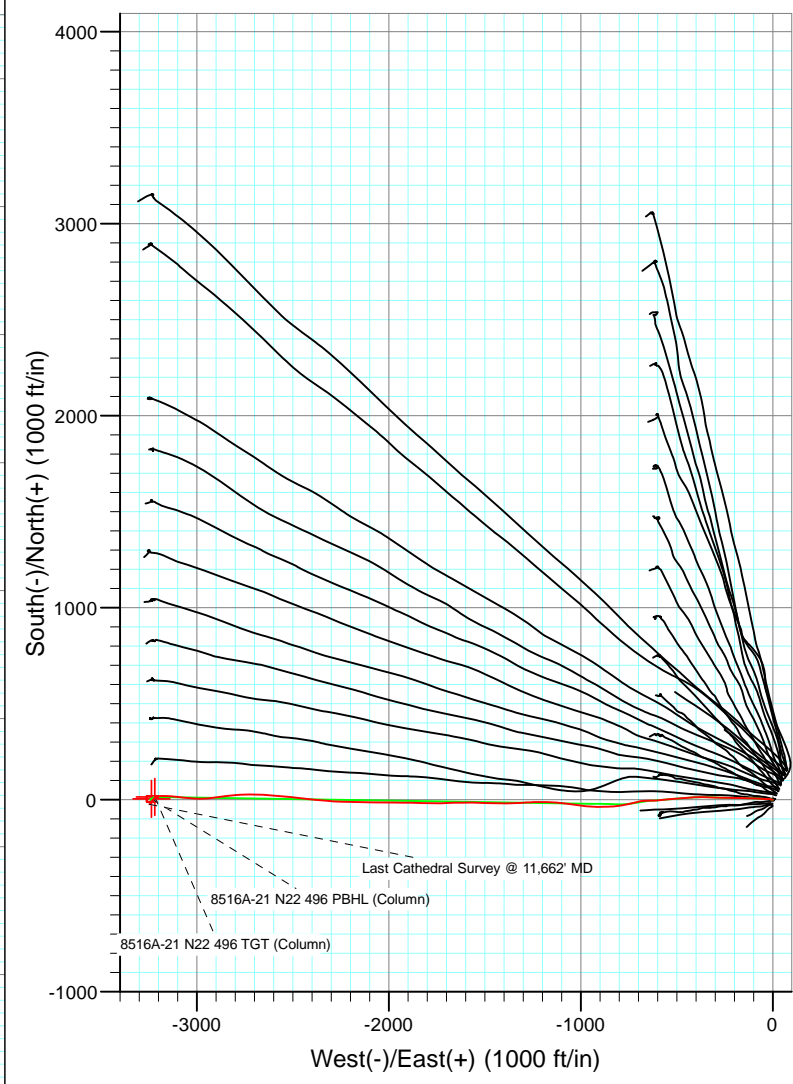
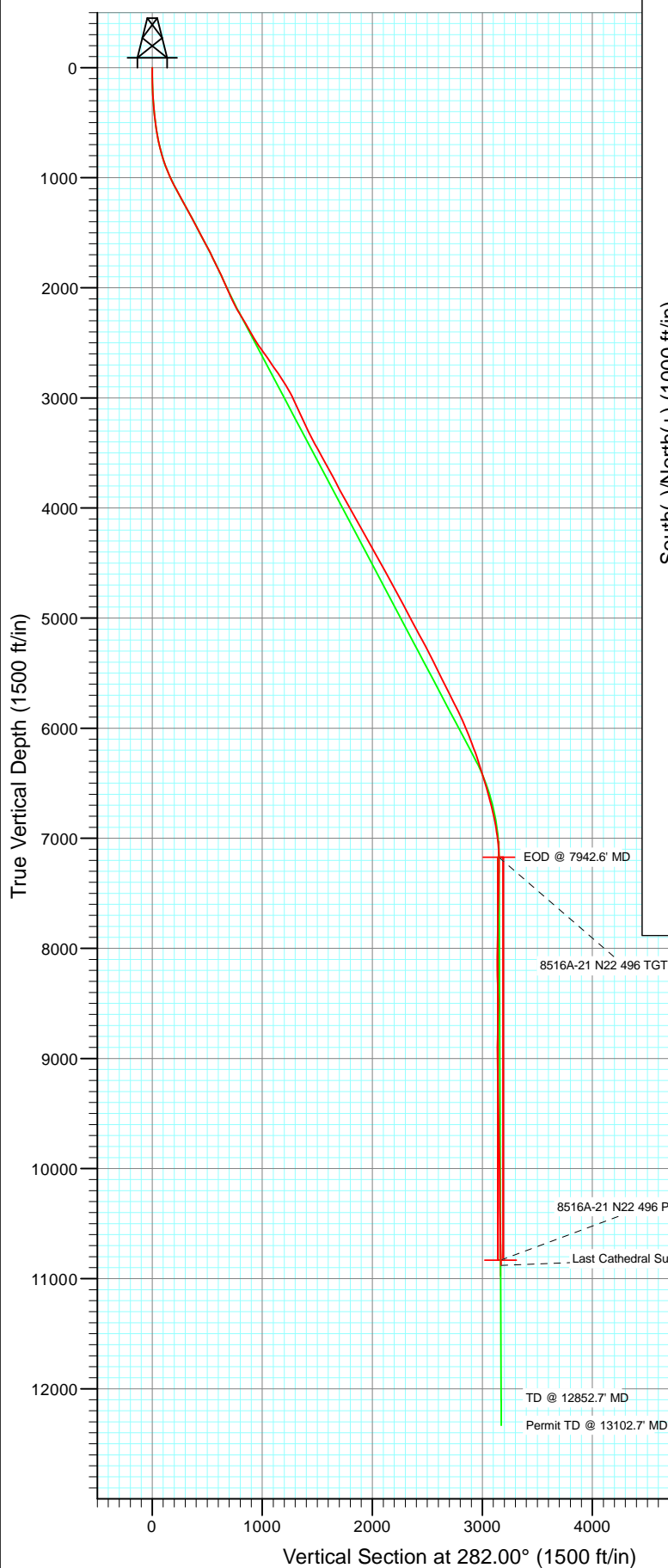


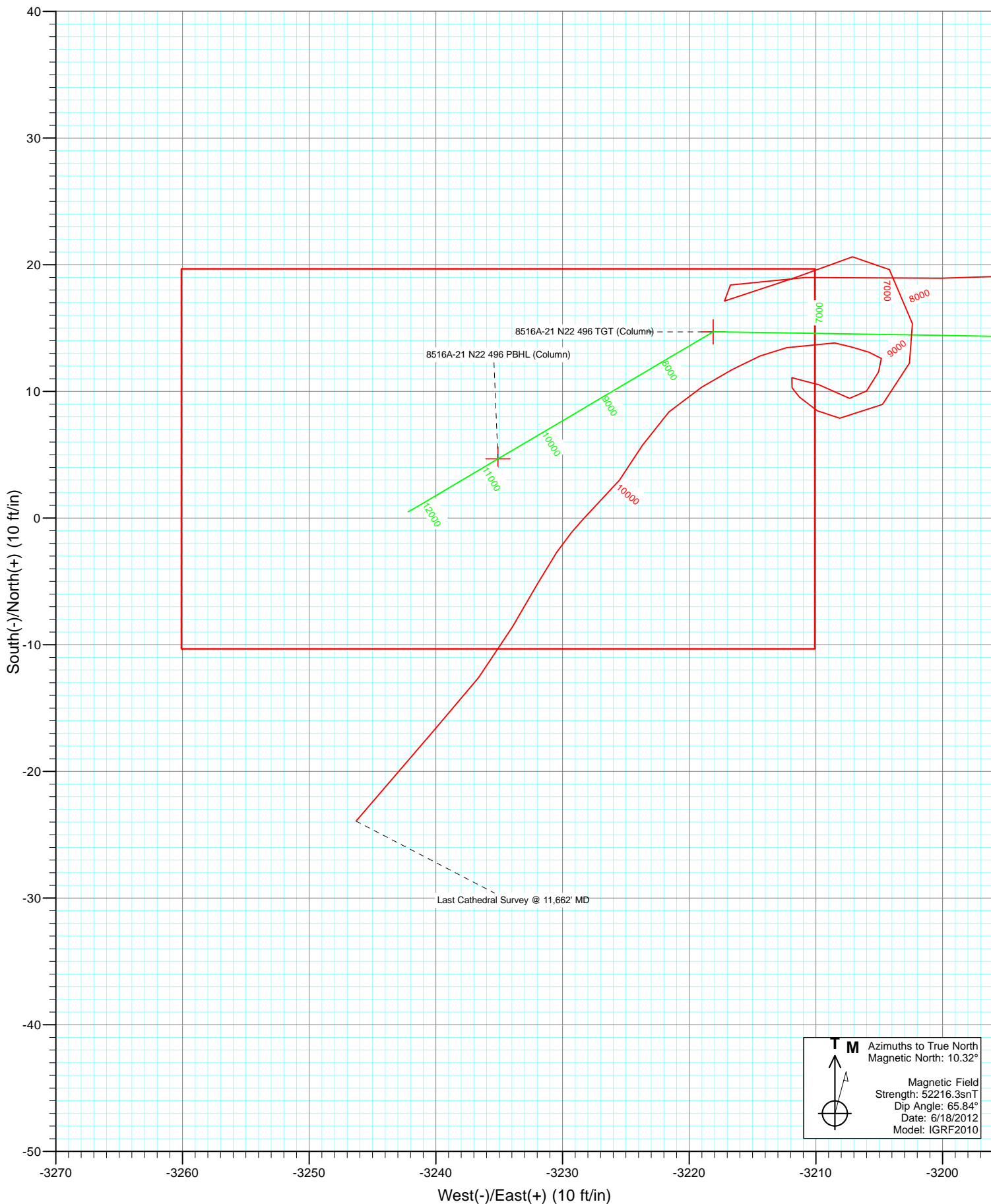


Project: Story Gulch
 Site: S22-T4S-R96W (N22 496) (Column Pattern
 Well: 8516A-21 N22 496
 Wellbore: DD
 Design: FINAL



Azimuths to True North
 Magnetic North: 10.32°
 Magnetic Field
 Strength: 52216.3nT
 Dip Angle: 65.84°
 Date: 6/18/2012
 Model: IGRF2010

FINAL 8516A-21 N22 496 125185/147355 (SH) 125413/163055 (MH) DN						
WELL @ 7602.0ft (Patterson #306) North American Datum 1983 Well 8516A-21 N22 496, True North						
Type User	Target No Target (Freehand)	Azimuth 282.00	Origin Type Slot	N/S 0.0	E/W 0.0	From TVD 0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
8516A-21 N22 496 TGT (Column)	7172.0	14.7	-3218.1	39.68384	-108.16868	
8516A-21 N22 496 PBHL (Column)	10832.0	4.7	-3235.1	39.68381	-108.16874	



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8516A-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:	8516A-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: 39.68423
From:	Lat/Long	Easting:	2,252,316.79 ft	Longitude: -108.15697
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: -1.68 °

Well	8516A-21 N22 496			
Well Position	+N/-S	0.0 ft	Northing:	1,684,891.96 ft
	+E/-W	0.0 ft	Easting:	2,252,236.10 ft
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	6/18/2012	10.32	65.84	52,216

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	282.00

Survey Program	Date	6/27/2012		
From	To	Survey (Wellbore)	Tool Name	Description
(ft)	(ft)			
210.0	363.0	Survey #1 (DD)	MWD	Geolink MWD
394.0	11,662.0	Survey #2 (DD)	Gyro	Gyro

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Formations /
Depth	(°)	(°)	Depth	(ft)	(ft)	Section	Rate	Rate	Comments
(ft)			(ft)			(ft)	(°/100ft)	(°/100ft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
210.0	2.10	279.30	210.0	0.6	-3.8	3.8	1.00	1.00	
240.0	2.30	286.30	239.9	0.9	-4.9	5.0	1.12	0.67	
271.0	2.60	292.20	270.9	1.3	-6.2	6.3	1.26	0.97	
302.0	3.80	279.50	301.9	1.8	-7.8	8.0	4.47	3.87	
332.0	4.80	283.40	331.8	2.2	-10.0	10.3	3.47	3.33	
363.0	5.60	277.90	362.6	2.7	-12.8	13.1	3.04	2.58	
394.0	6.40	277.00	393.5	3.1	-16.0	16.3	2.60	2.58	
424.0	7.20	275.00	423.3	3.5	-19.5	19.8	2.78	2.67	
454.0	7.70	272.60	453.0	3.8	-23.4	23.7	1.96	1.67	
489.0	7.20	268.90	487.7	3.8	-28.0	28.1	1.98	-1.43	
520.0	6.80	265.80	518.5	3.7	-31.7	31.8	1.77	-1.29	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8516A-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:	8516A-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
565.0	7.80	266.10	563.1	3.2	-37.4	37.3	2.22	2.22	
613.0	9.70	275.10	610.6	3.4	-44.7	44.4	4.87	3.96	
705.0	13.70	275.00	700.6	5.0	-63.3	63.0	4.35	4.35	
796.0	16.20	273.10	788.5	6.7	-86.7	86.2	2.80	2.75	
888.0	20.00	271.20	876.0	7.7	-115.3	114.3	4.18	4.13	
979.0	23.30	270.60	960.5	8.2	-148.8	147.3	3.63	3.63	
1,070.0	26.90	271.60	1,042.9	9.0	-187.4	185.2	3.98	3.96	
1,162.0	29.00	270.70	1,124.2	9.8	-230.5	227.5	2.33	2.28	
1,254.0	29.80	272.20	1,204.4	11.0	-275.7	271.9	1.18	0.87	
1,345.0	28.70	272.20	1,283.7	12.7	-320.1	315.7	1.21	-1.21	
1,437.0	29.30	269.60	1,364.2	13.4	-364.7	359.5	1.52	0.65	
1,528.0	28.10	267.20	1,444.0	12.2	-408.4	402.0	1.83	-1.32	
1,619.0	28.30	265.70	1,524.2	9.5	-451.3	443.4	0.81	0.22	
1,711.0	29.30	265.60	1,604.9	6.1	-495.5	485.9	1.09	1.09	
1,802.0	28.10	264.40	1,684.7	2.3	-539.0	527.7	1.46	-1.32	
1,893.0	26.90	265.00	1,765.4	-1.6	-580.8	567.8	1.35	-1.32	
1,985.0	26.50	267.60	1,847.6	-4.2	-622.1	607.6	1.34	-0.43	
2,075.0	25.00	268.90	1,928.6	-5.4	-661.2	645.6	1.78	-1.67	
2,167.0	25.40	256.60	2,011.9	-10.4	-699.8	682.4	5.70	0.43	
2,259.0	27.10	256.20	2,094.5	-20.0	-739.4	719.1	1.86	1.85	
2,350.0	30.20	260.30	2,174.3	-28.8	-782.1	759.0	4.03	3.41	
2,441.0	32.80	265.90	2,251.9	-34.4	-829.2	804.0	4.30	2.86	
2,533.0	30.40	269.30	2,330.3	-36.4	-877.4	850.6	3.25	-2.61	
2,625.0	30.10	270.30	2,409.7	-36.6	-923.7	895.9	0.64	-0.33	
2,716.0	32.90	275.60	2,487.3	-34.1	-971.1	942.8	4.33	3.08	
2,808.0	35.60	278.50	2,563.4	-27.7	-1,022.5	994.4	3.43	2.93	
2,899.0	34.60	278.20	2,637.8	-20.1	-1,074.3	1,046.6	1.12	-1.10	
2,991.0	35.20	274.00	2,713.3	-14.5	-1,126.6	1,099.0	2.69	0.65	
3,082.0	35.20	270.40	2,787.7	-12.5	-1,179.0	1,150.6	2.28	0.00	
3,173.0	32.80	269.30	2,863.1	-12.6	-1,229.9	1,200.4	2.72	-2.64	
3,265.0	29.90	267.90	2,941.7	-13.8	-1,277.7	1,246.9	3.25	-3.15	
3,356.0	25.80	265.00	3,022.1	-16.3	-1,320.1	1,287.9	4.74	-4.51	
3,448.0	25.30	267.60	3,105.1	-18.9	-1,359.7	1,326.1	1.33	-0.54	
3,540.0	25.00	269.90	3,188.4	-19.7	-1,398.8	1,364.1	1.11	-0.33	
3,631.0	25.20	272.30	3,270.8	-19.0	-1,437.4	1,402.0	1.14	0.22	
3,723.0	28.20	272.40	3,353.0	-17.3	-1,478.7	1,442.8	3.26	3.26	
3,815.0	29.80	272.20	3,433.5	-15.5	-1,523.2	1,486.7	1.74	1.74	
3,906.0	28.60	270.00	3,512.9	-14.6	-1,567.6	1,530.3	1.77	-1.32	
3,998.0	29.80	269.00	3,593.2	-15.0	-1,612.5	1,574.1	1.41	1.30	
4,090.0	29.20	269.50	3,673.3	-15.6	-1,657.8	1,618.3	0.70	-0.65	
4,181.0	27.90	267.00	3,753.2	-16.9	-1,701.3	1,660.6	1.94	-1.43	
4,273.0	28.60	268.50	3,834.3	-18.6	-1,744.8	1,702.8	1.08	0.76	
4,365.0	30.30	272.20	3,914.4	-18.3	-1,790.0	1,747.1	2.71	1.85	
4,456.0	29.90	272.00	3,993.1	-16.7	-1,835.6	1,792.0	0.45	-0.44	
4,548.0	29.00	270.40	4,073.2	-15.7	-1,880.8	1,836.5	1.30	-0.98	
4,639.0	28.90	270.70	4,152.8	-15.3	-1,924.9	1,879.6	0.19	-0.11	
4,730.0	30.70	271.20	4,231.8	-14.5	-1,970.1	1,924.0	2.00	1.98	
4,822.0	30.20	271.40	4,311.1	-13.5	-2,016.7	1,969.8	0.55	-0.54	
4,914.0	28.40	269.30	4,391.3	-13.2	-2,061.7	2,013.9	2.25	-1.96	
5,006.0	29.80	270.70	4,471.7	-13.2	-2,106.4	2,057.7	1.69	1.52	
5,097.0	30.40	271.80	4,550.5	-12.2	-2,152.1	2,102.5	0.90	0.66	
5,189.0	29.20	271.00	4,630.3	-11.0	-2,197.8	2,147.5	1.37	-1.30	
5,281.0	28.30	270.50	4,710.9	-10.5	-2,242.0	2,190.9	1.01	-0.98	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8516A-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:	8516A-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
5,372.0	28.80	275.10	4,790.9	-8.3	-2,285.4	2,233.8	2.48	0.55	
5,464.0	28.90	275.00	4,871.5	-4.4	-2,329.6	2,277.8	0.12	0.11	
5,556.0	27.10	273.60	4,952.7	-1.2	-2,372.7	2,320.6	2.08	-1.96	
5,647.0	28.10	276.00	5,033.3	2.4	-2,414.7	2,362.4	1.64	1.10	
5,738.0	29.10	277.10	5,113.2	7.4	-2,458.0	2,405.8	1.24	1.10	
5,830.0	27.60	276.10	5,194.2	12.4	-2,501.4	2,449.3	1.71	-1.63	
5,921.0	27.70	276.50	5,274.8	17.0	-2,543.4	2,491.3	0.23	0.11	
6,013.0	28.50	274.30	5,356.0	21.1	-2,586.5	2,534.4	1.42	0.87	
6,104.0	26.30	272.20	5,436.8	23.5	-2,628.3	2,575.7	2.64	-2.42	
6,196.0	25.80	272.90	5,519.4	25.3	-2,668.6	2,615.6	0.64	-0.54	
6,287.0	27.00	272.20	5,600.9	27.1	-2,709.1	2,655.5	1.36	1.32	
6,379.0	28.00	268.50	5,682.5	27.3	-2,751.5	2,697.1	2.15	1.09	
6,470.0	28.30	265.00	5,762.8	24.9	-2,794.4	2,738.5	1.84	0.33	
6,562.0	27.00	263.90	5,844.3	20.8	-2,836.9	2,779.2	1.52	-1.41	
6,653.0	25.00	262.20	5,926.1	16.0	-2,876.5	2,816.9	2.35	-2.20	
6,745.0	24.10	261.90	6,009.7	10.7	-2,914.3	2,852.9	0.99	-0.98	
6,837.0	22.40	265.10	6,094.3	6.5	-2,950.4	2,887.3	2.30	-1.85	
6,928.0	20.60	270.70	6,178.9	5.2	-2,983.7	2,919.6	3.00	-1.98	
7,020.0	19.10	273.50	6,265.5	6.4	-3,014.9	2,950.3	1.93	-1.63	
7,112.0	18.10	275.20	6,352.7	8.6	-3,044.1	2,979.4	1.24	-1.09	
7,203.0	17.10	276.00	6,439.4	11.2	-3,071.5	3,006.8	1.13	-1.10	
7,295.0	16.20	277.00	6,527.5	14.2	-3,097.7	3,033.0	1.03	-0.98	
7,356.0	15.50	277.00	6,586.2	16.3	-3,114.3	3,049.6	1.15	-1.15	
7,478.0	14.20	271.90	6,704.2	18.7	-3,145.4	3,080.6	1.51	-1.07	
7,569.0	13.50	270.70	6,792.5	19.2	-3,167.2	3,102.0	0.83	-0.77	
7,661.0	10.00	269.90	6,882.6	19.4	-3,185.9	3,120.3	3.81	-3.80	
7,752.0	8.00	266.30	6,972.4	18.9	-3,200.1	3,134.1	2.28	-2.20	
7,844.0	5.40	276.30	7,063.8	19.0	-3,210.8	3,144.6	3.09	-2.83	
7,935.0	2.50	237.50	7,154.6	18.4	-3,216.7	3,150.3	4.16	-3.19	
7,952.4	2.09	236.18	7,172.0	18.0	-3,217.3	3,150.8	2.37	-2.35	8516A-21 N22 496 TGT (Column)
8,119.0	1.90	73.00	7,338.5	17.1	-3,217.2	3,150.5	2.37	-0.11	
8,302.0	1.70	70.10	7,521.5	18.9	-3,211.8	3,145.5	0.12	-0.11	
8,485.0	1.40	70.40	7,704.4	20.6	-3,207.1	3,141.3	0.16	-0.16	
8,669.0	1.20	155.70	7,888.4	19.6	-3,204.2	3,138.3	0.96	-0.11	
8,852.0	1.70	157.80	8,071.3	15.4	-3,202.4	3,135.6	0.27	0.27	
8,944.0	2.50	202.00	8,163.2	12.2	-3,202.6	3,135.2	1.90	0.87	
9,035.0	2.50	224.20	8,254.2	9.0	-3,204.7	3,136.6	1.06	0.00	
9,127.0	2.50	280.20	8,346.1	7.9	-3,208.1	3,139.7	2.55	0.00	
9,219.0	2.20	317.30	8,438.0	9.5	-3,211.3	3,143.1	1.65	-0.33	
9,310.0	0.80	65.80	8,529.0	11.1	-3,211.9	3,144.0	2.82	-1.54	
9,402.0	2.20	118.20	8,621.0	10.5	-3,209.7	3,141.8	1.98	1.52	
9,494.0	1.10	105.00	8,712.9	9.5	-3,207.3	3,139.2	1.26	-1.20	
9,585.0	1.20	31.90	8,803.9	10.0	-3,206.0	3,138.0	1.51	0.11	
9,677.0	1.00	31.80	8,895.9	11.5	-3,205.1	3,137.4	0.22	-0.22	
9,860.0	1.00	277.30	9,078.9	13.1	-3,205.8	3,138.5	0.92	0.00	
9,952.0	0.80	298.30	9,170.9	13.5	-3,207.2	3,139.9	0.42	-0.22	
10,043.0	1.00	271.40	9,261.8	13.8	-3,208.5	3,141.3	0.51	0.22	
10,226.0	1.40	259.60	9,444.8	13.5	-3,212.3	3,144.9	0.26	0.22	
10,317.0	1.40	245.20	9,535.8	12.8	-3,214.4	3,146.8	0.39	0.00	
10,409.0	1.60	243.20	9,627.8	11.7	-3,216.6	3,148.7	0.22	0.22	
10,501.0	1.90	237.30	9,719.7	10.3	-3,219.0	3,150.8	0.38	0.33	
10,592.0	2.20	229.10	9,810.7	8.4	-3,221.6	3,153.0	0.46	0.33	
10,684.0	2.10	207.00	9,902.6	5.7	-3,223.7	3,154.5	0.90	-0.11	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8516A-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:	8516A-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
10,776.0	2.00	220.50	9,994.5	3.0	-3,225.5	3,155.7	0.53	-0.11	
10,867.0	1.30	226.40	10,085.5	1.1	-3,227.3	3,157.0	0.79	-0.77	
10,959.0	0.80	217.50	10,177.5	-0.2	-3,228.4	3,157.9	0.57	-0.54	
11,050.0	0.90	224.00	10,268.5	-1.2	-3,229.3	3,158.5	0.15	0.11	
11,142.0	1.50	212.20	10,360.4	-2.7	-3,230.5	3,159.3	0.70	0.65	
11,325.0	2.80	209.90	10,543.3	-8.6	-3,234.0	3,161.5	0.71	0.71	
11,509.0	3.60	222.80	10,727.0	-16.7	-3,240.1	3,165.9	0.58	0.43	
11,612.6	3.53	219.85	10,830.4	-21.6	-3,244.4	3,169.0	0.19	-0.07	8516A-21 N22 496 PBHL (Column)
11,662.0	3.50	218.40	10,879.7	-23.9	-3,246.3	3,170.4	0.19	-0.06	Last Cathedral Survey @ 11,662' MD

Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
8516A-21 N22 496 TGT	0.00	0.00	7,172.0	14.7	-3,218.1	1,685,000.78	2,249,019.81	39.68384	-108.16868
- actual wellpath misses target center by 3.4ft at 7952.4ft MD (7172.0 TVD, 18.0 N, -3217.3 E)									
- Point									
8516A-21 N22 496 PBH	0.00	0.00	10,832.0	4.7	-3,235.1	1,684,991.25	2,249,002.53	39.68381	-108.16874
- actual wellpath misses target center by 27.9ft at 11612.6ft MD (10830.4 TVD, -21.6 N, -3244.4 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
11,662.0	10,879.7	-23.9	-3,246.3	Last Cathedral Survey @ 11,662' MD

Checked By: _____ Approved By: _____ Date: _____