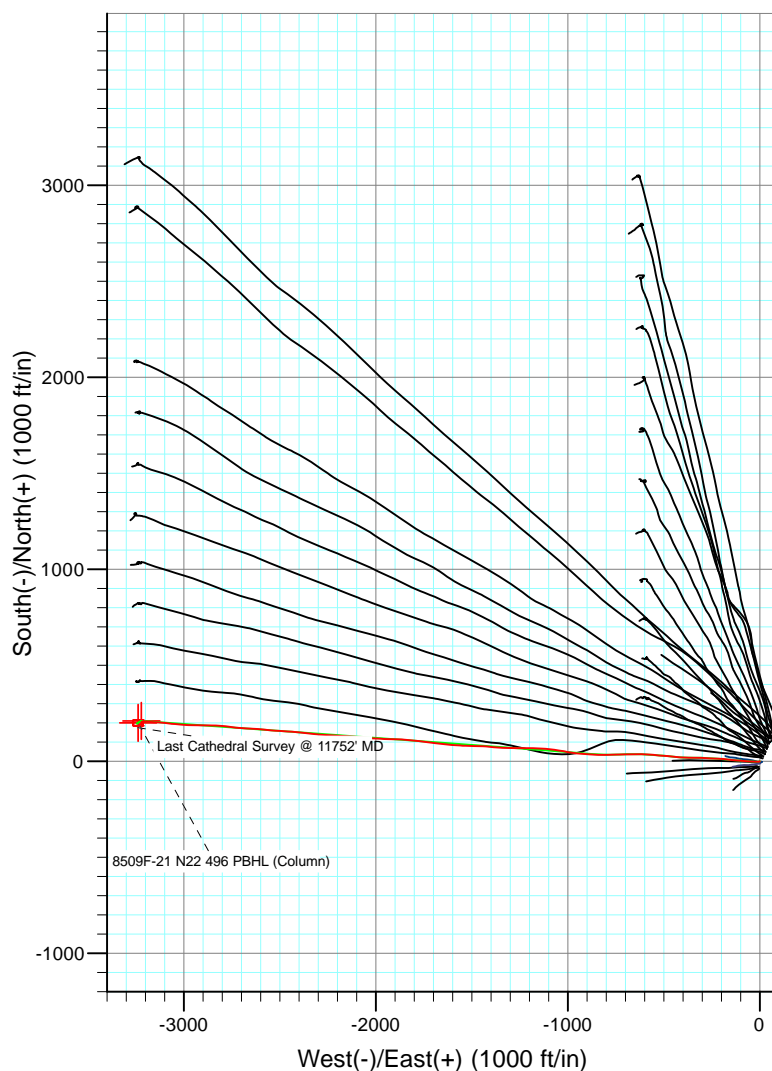
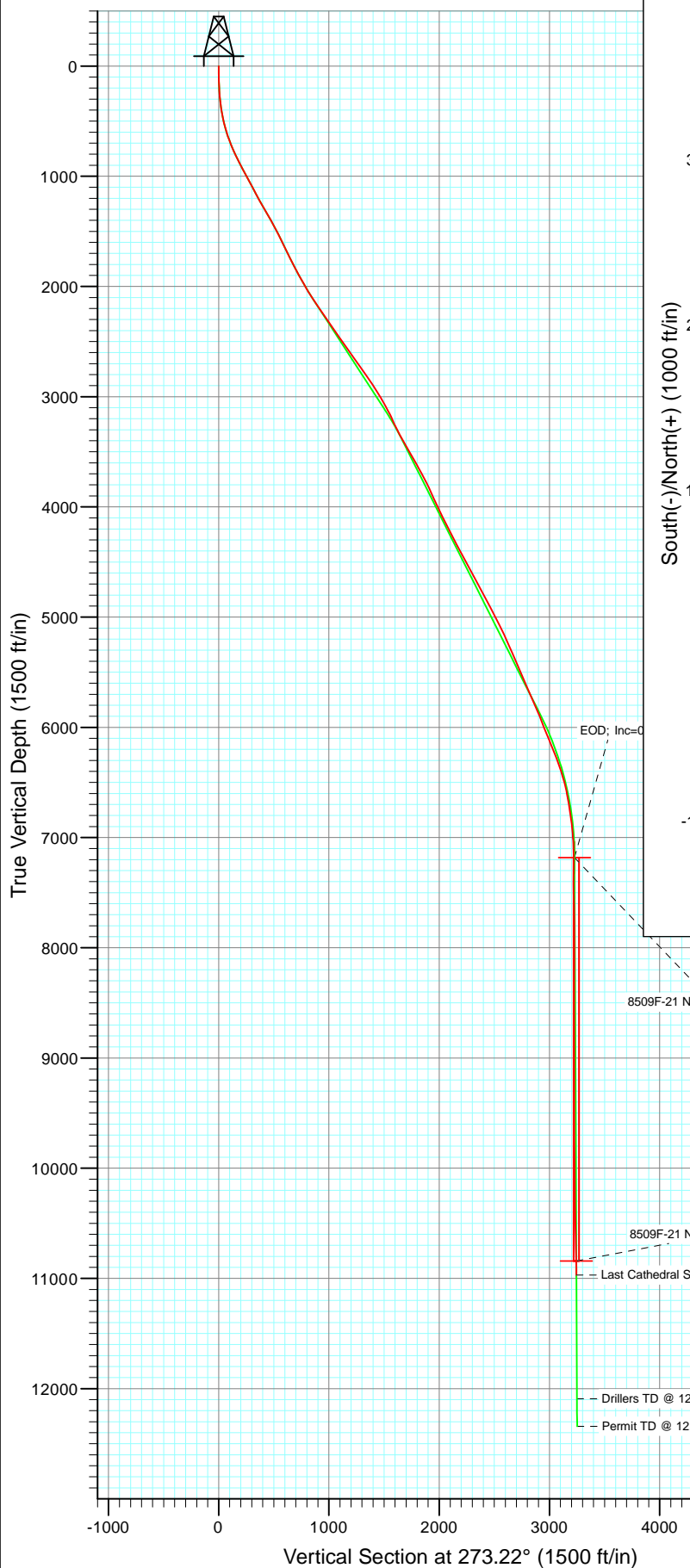




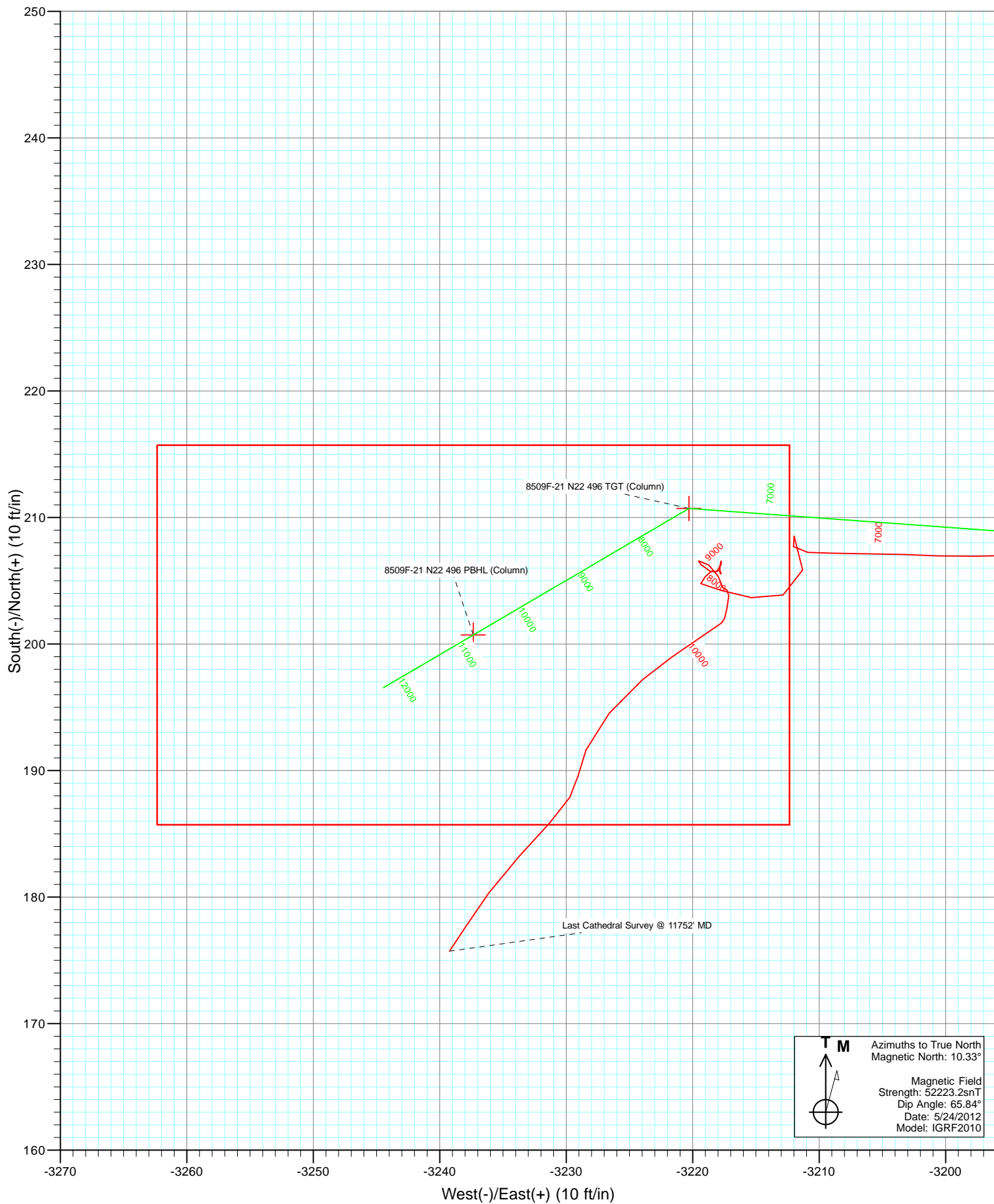
Project: Story Gulch
 Site: S22-T4S-R96W (N22 496) (Column Pattern)
 Well: 8509F-21 N22 496
 Wellbore: DD
 Design: Final Survey



Azimuths to True North
 Magnetic North: 10.33°

Magnetic Field
 Strength: 52223.2snT
 Dip Angle: 65.84°
 Date: 5/24/2012
 Model: IGRF2010

DD 8509F-21 N22 496 125178/146655 (SH) 125339/162755 (MH); LR						
WELL @ 7602.0ft (Patterson #306) North American Datum 1983 Well 8509F-21 N22 496, True North						
Type User	Target No Target (Freehand)	Azimuth 273.22	Origin Type Slot	N/S 0.0	E/W 0.0	From TVD 0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
8509F-21 N22 496 TGT (Column)	182.0	210.7	-3220.3	39° 41' 3.82 N	108° 10' 7.24 W	
8509F-21 N22 496 PBHL (Column)	142.0	200.7	-3237.3	39° 41' 3.72 N	108° 10' 7.45 W	



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8509F-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:	8509F-21 N22 496	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	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	8509F-21 N22 496					
Well Position	+N/-S	0.0 ft	Northing:	1,684,899.20 ft	Latitude:	39° 41' 1.74 N
	+E/-W	0.0 ft	Easting:	2,252,239.38 ft	Longitude:	108° 9' 26.04 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	5/24/2012	10.33	65.84	52,223

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	273.22	

Survey Program	Date	6/3/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
205.0	11,752.0	Survey #1 (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		
205.0	2.70	250.20	204.9	-1.6	-4.5	4.4	1.32	1.32		
234.0	4.00	253.30	233.9	-2.2	-6.2	6.0	4.52	4.48		
265.0	5.20	265.80	264.8	-2.6	-8.6	8.4	5.02	3.87		
296.0	5.40	269.10	295.6	-2.7	-11.5	11.3	1.18	0.65		
327.0	6.70	273.80	326.5	-2.6	-14.7	14.5	4.48	4.19		
358.0	7.40	274.30	357.2	-2.3	-18.5	18.3	2.27	2.26		
388.0	8.40	276.90	386.9	-1.9	-22.6	22.5	3.54	3.33		
419.0	9.50	276.00	417.6	-1.4	-27.4	27.3	3.58	3.55		
449.0	11.30	270.90	447.1	-1.1	-32.8	32.7	6.73	6.00		
480.0	12.20	271.00	477.4	-1.0	-39.1	39.0	2.90	2.90		
510.0	13.10	270.80	506.7	-0.9	-45.7	45.6	3.00	3.00		
604.0	17.40	273.90	597.4	0.2	-70.4	70.3	4.65	4.57		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8509F-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:	8509F-21 N22 496	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	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
697.0	20.80	275.90	685.2	2.9	-100.7	100.7	3.72	3.66	
788.0	24.10	275.50	769.3	6.3	-135.3	135.4	3.63	3.63	
880.0	26.40	275.90	852.5	10.2	-174.3	174.6	2.51	2.50	
971.0	27.90	273.70	933.5	13.7	-215.7	216.1	1.98	1.65	
1,063.0	28.40	271.60	1,014.6	15.7	-259.0	259.5	1.21	0.54	
1,154.0	28.70	271.90	1,094.6	17.0	-302.5	303.0	0.37	0.33	
1,246.0	28.00	271.80	1,175.5	18.4	-346.2	346.6	0.76	-0.76	
1,338.0	29.40	271.90	1,256.2	19.8	-390.3	390.8	1.52	1.52	
1,429.0	30.20	275.60	1,335.2	22.8	-435.4	436.0	2.20	0.88	
1,526.0	28.90	275.20	1,419.6	27.3	-483.0	483.8	1.36	-1.34	
1,613.0	27.50	274.80	1,496.2	30.9	-524.0	524.9	1.62	-1.61	
1,704.0	26.10	274.30	1,577.5	34.2	-564.9	565.9	1.56	-1.54	
1,796.0	25.80	272.30	1,660.2	36.5	-605.1	606.2	1.01	-0.33	
1,887.0	26.50	270.40	1,741.9	37.4	-645.2	646.3	1.20	0.77	
1,979.0	27.20	267.40	1,824.0	36.6	-686.7	687.7	1.66	0.76	
2,071.0	29.60	269.30	1,904.9	35.4	-730.4	731.3	2.79	2.61	
2,154.0	29.50	268.20	1,977.1	34.5	-771.4	772.1	0.66	-0.12	
2,200.0	29.30	267.10	2,017.2	33.6	-793.9	794.6	1.25	-0.43	
2,245.0	30.90	270.10	2,056.1	33.0	-816.5	817.0	4.88	3.56	
2,291.0	33.50	272.40	2,095.0	33.6	-841.0	841.5	6.25	5.65	
2,336.0	34.90	274.10	2,132.2	35.0	-866.2	866.8	3.77	3.11	
2,381.0	35.00	273.20	2,169.1	36.7	-892.0	892.6	1.17	0.22	
2,428.0	35.30	275.20	2,207.6	38.6	-918.9	919.7	2.53	0.64	
2,473.0	31.80	273.00	2,245.1	40.4	-943.7	944.5	8.23	-7.78	
2,519.0	35.40	278.60	2,283.4	43.1	-969.0	969.9	10.32	7.83	
2,564.0	35.40	280.70	2,320.1	47.4	-994.7	995.8	2.70	0.00	
2,610.0	34.80	280.50	2,357.7	52.3	-1,020.7	1,022.0	1.33	-1.30	
2,655.0	34.20	278.90	2,394.8	56.6	-1,045.8	1,047.4	2.42	-1.33	
2,701.0	34.60	276.50	2,432.7	60.1	-1,071.6	1,073.3	3.07	0.87	
2,746.0	35.10	277.40	2,469.7	63.2	-1,097.1	1,098.9	1.59	1.11	
2,803.0	34.90	273.40	2,516.4	66.3	-1,129.7	1,131.6	4.04	-0.35	
2,895.0	36.00	271.30	2,591.3	68.5	-1,183.0	1,184.9	1.78	1.20	
2,986.0	35.50	269.80	2,665.2	69.0	-1,236.1	1,238.0	1.11	-0.55	
3,078.0	35.20	269.90	2,740.2	68.8	-1,289.3	1,291.2	0.33	-0.33	
3,170.0	34.90	274.10	2,815.5	70.7	-1,342.1	1,344.0	2.64	-0.33	
3,261.0	33.40	275.80	2,890.8	75.1	-1,393.0	1,395.0	1.95	-1.65	
3,353.0	31.80	272.10	2,968.4	78.5	-1,442.4	1,444.6	2.78	-1.74	
3,445.0	29.80	271.40	3,047.4	79.9	-1,489.5	1,491.7	2.21	-2.17	
3,536.0	27.40	271.70	3,127.3	81.1	-1,533.1	1,535.2	2.64	-2.64	
3,628.0	25.00	274.20	3,209.8	83.2	-1,573.6	1,575.8	2.87	-2.61	
3,720.0	25.70	273.70	3,292.9	85.9	-1,612.9	1,615.2	0.80	0.76	
3,811.0	29.10	278.00	3,373.7	90.2	-1,654.5	1,657.0	4.32	3.74	
3,903.0	30.80	278.30	3,453.4	96.8	-1,700.0	1,702.7	1.85	1.85	
3,994.0	29.50	276.70	3,532.1	102.7	-1,745.3	1,748.3	1.68	-1.43	
4,086.0	29.60	275.10	3,612.2	107.4	-1,790.4	1,793.6	0.86	0.11	
4,177.0	27.80	273.50	3,692.0	110.7	-1,834.0	1,837.3	2.15	-1.98	
4,268.0	28.20	273.80	3,772.3	113.4	-1,876.6	1,880.0	0.47	0.44	
4,360.0	24.10	271.00	3,854.9	115.2	-1,917.1	1,920.6	4.65	-4.46	
4,451.0	24.10	272.10	3,938.0	116.2	-1,954.3	1,957.7	0.49	0.00	
4,543.0	25.70	274.20	4,021.4	118.3	-1,992.9	1,996.4	1.99	1.74	
4,634.0	26.80	274.40	4,103.0	121.4	-2,033.1	2,036.7	1.21	1.21	
4,726.0	26.20	275.50	4,185.4	124.9	-2,074.0	2,077.7	0.84	-0.65	
4,817.0	27.10	275.70	4,266.7	128.9	-2,114.6	2,118.5	0.99	0.99	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8509F-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:	8509F-21 N22 496	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	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
4,909.0	27.30	272.20	4,348.5	131.8	-2,156.5	2,160.5	1.75	0.22	
5,001.0	28.50	273.10	4,429.8	133.8	-2,199.5	2,203.6	1.38	1.30	
5,092.0	28.80	273.90	4,509.7	136.4	-2,243.1	2,247.2	0.54	0.33	
5,182.0	29.40	273.40	4,588.3	139.2	-2,286.8	2,291.0	0.72	0.67	
5,275.0	27.50	276.50	4,670.1	143.0	-2,330.9	2,335.2	2.59	-2.04	
5,367.0	27.10	276.10	4,751.9	147.6	-2,372.8	2,377.4	0.48	-0.43	
5,458.0	28.00	276.20	4,832.5	152.1	-2,414.7	2,419.4	0.99	0.99	
5,550.0	28.30	273.30	4,913.7	155.7	-2,457.9	2,462.8	1.52	0.33	
5,642.0	28.30	273.70	4,994.7	158.4	-2,501.4	2,506.4	0.21	0.00	
5,733.0	26.90	275.60	5,075.3	161.8	-2,543.5	2,548.5	1.82	-1.54	
5,824.0	24.10	274.90	5,157.4	165.4	-2,582.5	2,587.7	3.09	-3.08	
5,916.0	24.10	274.10	5,241.4	168.3	-2,619.9	2,625.2	0.36	0.00	
6,008.0	23.20	272.70	5,325.7	170.5	-2,656.8	2,662.1	1.15	-0.98	
6,099.0	23.70	272.90	5,409.2	172.3	-2,692.9	2,698.4	0.56	0.55	
6,191.0	22.70	277.30	5,493.7	175.5	-2,729.0	2,734.6	2.17	-1.09	
6,282.0	23.60	278.00	5,577.4	180.3	-2,764.5	2,770.2	1.03	0.99	
6,374.0	23.30	274.50	5,661.8	184.2	-2,800.8	2,806.8	1.55	-0.33	
6,465.0	24.60	272.70	5,745.0	186.6	-2,837.7	2,843.7	1.64	1.43	
6,557.0	23.90	271.20	5,828.9	187.8	-2,875.5	2,881.5	1.01	-0.76	
6,648.0	21.00	268.20	5,913.0	187.7	-2,910.2	2,916.1	3.43	-3.19	
6,740.0	21.80	271.60	5,998.6	187.7	-2,943.8	2,949.6	1.60	0.87	
6,831.0	22.00	272.80	6,083.1	189.0	-2,977.7	2,983.6	0.54	0.22	
6,923.0	22.50	274.30	6,168.2	191.1	-3,012.4	3,018.4	0.82	0.54	
7,014.0	21.40	275.80	6,252.6	194.1	-3,046.3	3,052.4	1.36	-1.21	
7,106.0	20.10	276.90	6,338.6	197.7	-3,078.7	3,085.0	1.48	-1.41	
7,197.0	16.80	275.90	6,424.9	201.0	-3,107.3	3,113.7	3.64	-3.63	
7,300.0	13.90	272.00	6,524.3	202.9	-3,134.5	3,140.9	2.99	-2.82	
7,380.0	11.40	272.30	6,602.3	203.6	-3,152.0	3,158.5	3.13	-3.12	
7,472.0	9.20	277.40	6,692.8	204.9	-3,168.4	3,174.9	2.59	-2.39	
7,563.0	8.20	276.00	6,782.8	206.5	-3,182.1	3,188.6	1.12	-1.10	
7,655.0	6.90	268.20	6,874.0	207.0	-3,194.1	3,200.7	1.80	-1.41	
7,746.0	4.70	273.70	6,964.5	207.1	-3,203.3	3,209.9	2.49	-2.42	
7,838.0	2.60	266.30	7,056.3	207.2	-3,209.1	3,215.7	2.33	-2.28	
7,930.0	1.30	308.80	7,148.3	207.7	-3,212.0	3,218.6	2.02	-1.41	
7,963.8	0.64	338.17	7,182.0	208.1	-3,212.4	3,219.0	2.39	-1.96	8509F-21 N22 496 TGT (Column)
8,021.0	1.10	78.70	7,239.3	208.5	-3,212.0	3,218.6	2.39	0.81	
8,204.0	2.00	199.20	7,422.2	205.9	-3,211.3	3,217.8	1.49	0.49	
8,296.0	1.40	245.90	7,514.2	203.9	-3,212.9	3,219.2	1.58	-0.65	
8,387.0	1.90	279.40	7,605.2	203.7	-3,215.4	3,221.7	1.17	0.55	
8,479.0	1.10	290.10	7,697.1	204.2	-3,217.7	3,224.1	0.92	-0.87	
8,570.0	0.60	286.20	7,788.1	204.7	-3,219.0	3,225.4	0.55	-0.55	
8,662.0	0.10	98.80	7,880.1	204.8	-3,219.4	3,225.8	0.76	-0.54	
8,753.0	0.80	26.70	7,971.1	205.3	-3,219.0	3,225.4	0.85	0.77	
8,845.0	0.30	136.60	8,063.1	205.7	-3,218.5	3,225.0	1.03	-0.54	
8,936.0	0.40	57.30	8,154.1	205.7	-3,218.1	3,224.6	0.50	0.11	
9,028.0	0.50	13.10	8,246.1	206.3	-3,217.7	3,224.3	0.38	0.11	
9,120.0	0.20	215.90	8,338.1	206.6	-3,217.8	3,224.3	0.75	-0.33	
9,211.0	0.40	183.10	8,429.1	206.1	-3,217.9	3,224.4	0.28	0.22	
9,303.0	0.30	165.40	8,521.1	205.6	-3,217.8	3,224.3	0.16	-0.11	
9,395.0	0.30	3.20	8,613.1	205.6	-3,217.7	3,224.2	0.64	0.00	
9,487.0	0.20	278.00	8,705.1	205.8	-3,217.9	3,224.4	0.38	-0.11	
9,578.0	0.20	228.70	8,796.1	205.7	-3,218.2	3,224.6	0.18	0.00	
9,670.0	0.40	288.50	8,888.1	205.7	-3,218.6	3,225.1	0.38	0.22	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well 8509F-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:	8509F-21 N22 496	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	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
9,761.0	0.80	314.30	8,979.1	206.3	-3,219.3	3,225.8	0.52	0.44	
9,853.0	0.40	120.50	9,071.1	206.6	-3,219.5	3,226.0	1.30	-0.43	
9,944.0	0.70	107.50	9,162.1	206.2	-3,218.7	3,225.2	0.35	0.33	
10,036.0	0.90	164.10	9,254.1	205.4	-3,218.0	3,224.4	0.85	0.22	
10,127.0	0.40	143.40	9,345.1	204.4	-3,217.6	3,224.0	0.60	-0.55	
10,219.0	0.20	55.00	9,437.1	204.3	-3,217.3	3,223.7	0.48	-0.22	
10,310.0	0.70	179.40	9,528.1	203.8	-3,217.1	3,223.5	0.91	0.55	
10,401.0	0.60	199.30	9,619.1	202.8	-3,217.3	3,223.6	0.27	-0.11	
10,493.0	0.40	182.20	9,711.1	202.0	-3,217.5	3,223.7	0.27	-0.22	
10,584.0	0.30	260.00	9,802.1	201.7	-3,217.7	3,224.0	0.49	-0.11	
10,860.0	1.70	231.40	10,078.0	199.0	-3,221.6	3,227.7	0.52	0.51	
10,951.0	2.00	233.50	10,169.0	197.2	-3,224.0	3,229.9	0.34	0.33	
11,043.0	2.70	218.20	10,260.9	194.5	-3,226.6	3,232.4	1.02	0.76	
11,134.0	1.70	202.80	10,351.8	191.6	-3,228.4	3,234.1	1.27	-1.10	
11,225.0	1.00	187.70	10,442.8	189.6	-3,229.1	3,234.6	0.86	-0.77	
11,317.0	1.30	211.30	10,534.8	187.9	-3,229.7	3,235.2	0.60	0.33	
11,408.0	2.00	222.40	10,625.7	185.8	-3,231.3	3,236.7	0.84	0.77	
11,499.0	2.50	222.60	10,716.7	183.2	-3,233.7	3,238.9	0.55	0.55	
11,591.0	2.20	216.10	10,808.6	180.3	-3,236.1	3,241.2	0.44	-0.33	
11,623.8	2.09	214.93	10,841.4	179.3	-3,236.9	3,241.8	0.35	-0.33	8509F-21 N22 496 PBHL (Column)
11,683.0	1.90	212.50	10,900.5	177.6	-3,238.0	3,242.9	0.35	-0.32	
11,752.0	1.80	214.20	10,969.5	175.7	-3,239.2	3,244.0	0.17	-0.14	Last Cathedral Survey @ 11752' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
8509F-21 N22 496 PBHL	0.00	0.00	10,842.0	200.7	-3,237.3	1,685,194.51	2,249,009.28	39° 41' 3.72 N	108° 10' 7.45 W
- actual wellpath misses target center by 21.4ft at 11623.8ft MD (10841.4 TVD, 179.3 N, -3236.9 E)									
- Rectangle (sides W30.0 H50.0 D0.0)									
8509F-21 N22 496 TGT	0.00	0.00	7,182.0	210.7	-3,220.3	1,685,204.01	2,249,026.62	39° 41' 3.82 N	108° 10' 7.24 W
- actual wellpath misses target center by 8.3ft at 7963.8ft MD (7182.0 TVD, 208.1 N, -3212.4 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
11,752.0	10,969.5	175.7	-3,239.2	Last Cathedral Survey @ 11752' MD

Checked By: _____ Approved By: _____ Date: _____